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**THE LARGER MOTHS OF THE GALÁPAGOS
ISLANDS (GEOMETROIDEA: SPHINGOIDEA
& NOCTUOIDEA)¹**

By

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ABSTRACT: Eighty-eight of the 90 species of Epiplemlidae, Spingidae, Arctidae, and Noctuidae now known to occur on the Galápagos Islands are illustrated. Twelve of these are described as new. Four new subspecies are described and six species-group names are newly placed in synonymy. The world distribution of the species is summarized and new biological data is given for some of the species.

INTRODUCTION

The Galápagos were discovered by Fray Tomás de Berlanga, Bishop of Panama, on a voyage to Peru in 1535. Thereafter, for nearly three centuries, the islands received only occasional or temporary visitors, becoming successively the haunt of buccaneers, whalers, and sealers. In 1832, with the dissolution of the Spanish-American Empire, the archipelago was annexed by Ecuador and the first settlement was established, on Floreana Island. Today, the southern slopes of the islands of San Cristóbal, Santa Cruz, and Isabela are inhabited and a small colony continues on Floreana. Altogether over five thousand people live in the islands, mainly engaged in fishing or subsistence farming, or connected in one way or another with tourism.

The Galápagos Islands have a unique place in the history of science because of the visit of Charles Darwin in 1835 and the subsequent role his observations there played in the formulation of his ideas on organic evolution, which culminated in 1859 with the publication of the *Origin of Species*. The extraordinary indigenous wildlife of the islands suffered a rapid decline in the years

¹ Contribution No. 171 of the Charles Darwin Foundation.

following their settlement, as a result both of exploitation and of introduction of plants and animals brought by man. These threats continue, although they are being alleviated by protective legislation and programs.

In 1959, all uninhabited areas of the islands were declared territory of a National Park by the Government of Ecuador and the current protection laws were brought into force. At the same time, a newly created international organization, the Charles Darwin Foundation for the Galápagos Isles, was entrusted with the task of coordinating scientific research in the islands and advising the Government on conservation policy and the development of the National Park.

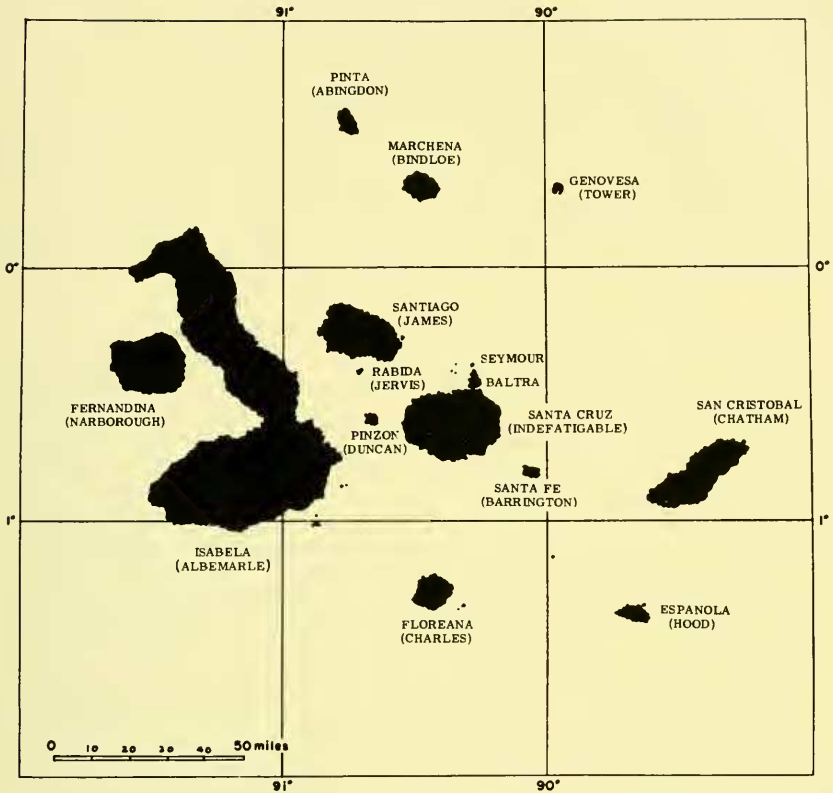
The Galápagos Islands are the tops of huge shield volcanos composed mainly of basalt. Dating studies have shown that the majority of lavas on the surface today came from eruptions during Pleistocene and Recent times. Volcanic activity continues and there have been eruptions on five of the islands in the past hundred years.

Approximately two-thirds of the land area are lava-strewn wastelands with a sparse xerophytic vegetation dominated by cacti and thorn-scrub. Only near the summits and on humid southern slopes of the higher islands does dense vegetation occur, composed typically of *Scalesia* woodland, a lush although somewhat seasonal undergrowth, and a limited number of epiphytic species. Rainfall is irregular, but in most years there is the possibility of heavy showers during the hot season, January to April, when daytime temperatures reach 35° C. on the coast. The cool, or *garúa*, season, lasting for the remaining months of the year, is characterized by generally more cloudy weather and steady southeasterly winds, when corresponding temperatures drop to 22° C. or even lower.

The names of the islands have been a source of confusion. Ecuadorian names (used in this paper) and the equivalent English names are shown on the map. In fact, some of the islands have several names (see Bowman, 1966, p. xvii).

Recent collecting has yielded many additions to the species recorded in *Insects of the Galápagos Islands* by Linsley and Usinger. Dr. F. H. Rindge of the American Museum of Natural History has recently published on the Geometridae and a check list is included here. The Pyralidae and Microlepidoptera of the islands await further study.

An attempt has been made to include all known museum material. Forewing measurement is taken from the center of the mesothorax to the apex of the forewing. Species identifications are based as far as possible on comparisons between Galápagos specimens and the type material. Where the type of a particular species has not been traced the identifications have been made by comparing Galápagos examples with material from the type-locality as far as this is known. The heading 'Distribution' refers to distribution within the



MAP 1. Main group of islands forming the Galápagos Archipelago. Darwin (Culpepper) and Wolf (Wenman) lie to the northwest.

islands based on material studied by the author. A proportion of the species under consideration are widespread in distribution and reference to other faunistic works yields useful data; as these works may not be available to readers I have abstracted much of this data. The bibliography lists all publications referred to in the text and in addition cites other scientific and general works relevant to the study of the Galápagos fauna.

Of the 90 species dealt with in this paper 28 are endemic. However, Galápagos populations of the 62 remaining species often differ from those of the mainland and 16 are sufficiently distinct to warrant subspecific status.

The following abbreviations have been used for depositories: AMNH—American Museum of Natural History, New York; BMNH—British Museum (Natural History), London; CAS—California Academy of Sciences, San Francisco; CMP—Carnegie Museum, Pittsburgh; CU—Cornell University, Ithaca; IRSNB—Institut Royal des Sciences Naturelles de Belgique, Brussels; IZ—

Institute of Zoology, University of Uppsala; LACM—Los Angeles County Museum; LS—Linnean Society, London; MCZ—Museum of Comparative Zoology, Boston; MNHN—Museum National d'Histoire Naturelle, Paris; NM—Naturhistorisches Museum, Vienna; NR—Naturhistoriska Riksmuseum, Stockholm; RSM—Royal Scottish Museum, Edinburgh; UM—University Museum, Oxford; USC—University of Southern California, Los Angeles; USNM—National Museum of Natural History, Smithsonian Institution, Washington, D.C.; ZSBS—Zoologische Sammlung des Bayerischen Staates, Munich. Unless otherwise stated all figured specimens are in the BMNH.

ACKNOWLEDGMENTS

Thanks to the tremendous efforts made in rearing and collecting specimens for the British Museum (Natural History) by Dr. R. Perry (formerly Director of the Charles Darwin Research Station) and Dr. Tj. de Vries (of the Zoologisch Museum, Amsterdam on grants from the Netherlands Foundation for the advancement of Tropical Research and the World Wildlife Fund) excellent series have been built up to complement the historic material studied by Walker, that collected by Rollo H. Beck for Lord Rothschild, and the St. George Expedition material collected by C. L. Collenette and Miss C. E. Longfield. Through the kindness of L. A. Berger I have examined the Institut Royal des Sciences Naturelles de Belgique material collected by J. and N. Leleup. I am most grateful to Dr. P. H. Arnaud, Jr. who made available to me the 11,387 specimens in the collections of the California Academy of Sciences amassed by D. Q. Cavagnaro, F. (P) Leon, E. G. Linsley, R. O. Schuster, D. W. Snow, I. L. Wiggins, F. X. Williams, and M. Willows (Jr.). E. C. Pelham-Clinton of the Royal Scottish Museum has been of great assistance in the identification of the Edinburgh University Expedition (1968) material. The material deposited in the National Museum of Natural History, Smithsonian Institution, Washington, D.C.; the American Museum of Natural History, New York; the Museum of Comparative Zoology, Boston (collected by Dr. R. Silberglied); and the Carnegie Museum, Pittsburgh, has also been examined. J. P. Donahue, Los Angeles County Museum of Natural History, has mailed me material from that institution and has also been kind enough to examine and photograph relevant Allan Hancock Foundation material studied by Prof. A. G. Richards, Jr. at the University of Southern California, Los Angeles. Dr. P. I. Persson of the Naturhistoriska Riksmuseum, Stockholm, and Dr. W. Dierl of the Zoologische Sammlung des Bayerischen Staates, Munich, loaned me their Galápagos material. Special thanks are due to Dr. E. L. Todd, United States Department of Agriculture, and Prof. J. G. Franclemont, Cornell University, for their great help and advice concerning identification of Noctuidae. Dr. Perry and Dr. Tj. de Vries have placed their comprehensive notes concerning early stages and foodplants with me. I wish to acknowledge the extensive help given by my

colleagues at the British Museum (Natural History). I am indebted to P. V. York of this museum for taking the photographs.

CHECK-LIST OF SPECIES

EPIPLEMIDAE

Epiplema becki Hayes, new species.

GEOMETRIDAE

(recently covered by Dr. F. H. Rindge (1973) and not included in the present work)

Cyclophora impudens (Warren)
Disclisioprocta stellata (Guenée)
Hydria affirmata (Guenée)
Eupithecia leleupi Herbulot
E. perryvriesi Herbulot
Perizoma (?) *perryi* Rindge
Semiothisa cruciata cruciata Herbulot
S. cruciata isabelae Rindge
S. cerussata Herbulot
Thyriniteina infans Herbulot
T. umbrosa Herbulot
Sphacelodes vulneraria (Hübner)
Oxydia lignata (Warren).

SPHINGIDAE

Agrius cingulatus (Fabricius)
Manduca sexta leucoptera (Rothschild & Jordan), new combination
M. rustica calapagensis (Holland), new combination
Erinnyis alope dispersa Kernbach
E. ello encantada Kernbach
E. obscura conformis Rothschild & Jordan
Enyo lugubris delanoi (Kernbach), new combination
Pachygonia drucei Rothschild & Jordan
Eumorpha fasciata tupaci (Kernbach), new combination
E. labruscae yupanquii (Kernbach), new combination
Xylophanes norfolki Kernbach
X. tersa (Linnaeus)
Hyles lineata florilega (Kernbach), new combination.

ARCTIIDAE

Utetheisa ornatix (Linnaeus)
U. devriesi Hayes, new species
U. galapagensis (Wallengren)
U. perryi Hayes, new species.

NOCTUIDAE

NOCTUINAE

Agrotis consternans Hayes, new species
A. ipsilon (Hufnagel)

- A. subterranea williamsi* (Schaus), new combination
Peridroma saucia (Hübner)
Psaphara conwayi (Richards), new combination
P. interclusa Walker, revived combination
Anicla oceanica (Schaus), new combination.

HELIOTHINAE

- Heliothis cystiphora* (Wallengren)
H. virescens (Fabricius).

HADENINAE

- Mythimna solita* (Walker)
M. latiuscula (Herrich-Schäffer)
Pseudaletia sequax Franclemont
P. cooperi (Schaus).

ACRONICTINAE

- Magusa erema* Hayes, new species
Trachea cavagnaroi Hayes, new species
Cropia infusa (Walker)
Callopietria floridensis (Guenée)
Catabena seorsa Todd
Neogalea esula longfieldae Hayes, new subspecies
Spodoptera eridania (Stoll)
S. latifascia (Walker)
S. dolichos (Fabricius)
S. frugiperda (Smith)
S. roseae (Schaus)
Elaphria encantada Hayes, new species
Platysenta mobilis (Walker), revived species
P. sutor (Guenée)
P. ruthae (Schaus)
Agrotisia williamsi (Schaus).

ACONTIINAE

- Ozarba consternans* Hayes, new species
Bagisara repanda (Fabricius), new combination
Eublemma recta (Guenée), new combination
Amyna insularum Schaus
Heliocontia margana (Fabricius)
Spragueia creton Schaus
Ponometia indubitans (Walker).

EUTELIINAE

- Paectes arcigera* (Guenée).

SARROTHRIPINAE

- Characoma nilotica* (Rogenhofer).

CATOCALINAE

- Mocis incurvalis* Schaus
M. latipes (Guenée)
Celiptera remigioides (Guenée)
Zale obsita (Guenée), revived species.

PLUSIINAE

- Autoplusia egena galapagensis* (Schaus)
Argyrogramma verruca (Fabricius)
Pseudoplusia includens (Walker).

OPHIDERINAE

- Melipotis acontioides producta* Hayes, new subspecies
M. indomita (Walker)
M. harrisoni Schaus
Ascalapha odorata (Linnaeus)
Letis mycerina (Cramer)
Rivula asteria Druce, new combination
Glymphis toddi Hayes, new species
Anomis editrix (Guenée)
A. illita Guenée
A. luridula professorum Schaus, new status
A. erosa Hübner
Plusiodonta clavifera (Walker)
Gonodonta biarmata evadens Walker, new status
G. fulvangula Geyer
Metallata absumens contiguata Hayes, new subspecies
Bendis formularis Geyer
Anticarsia gemmatalis Hübner
A. prona (Möschler)
Psorya hadesia Schaus
Epidromia zetophora Guenée
E. zephyritis Schaus.

HYPENINAE

- Sorygaza variata* Hayes, new species
Hypena vetustalis (Guenée)
H. microfuliginea Hayes, new species
Peliala fuliginea Hayes, new species
Ophiuche lividalis (Hübner)
O. minualis constans Hayes, new subspecies.

Family EPIPLEMIDAE

***Epiplema becki* Hayes, new species.**

(Figures 16, 17, 168-170.)

DESCRIPTION. Male 8.5 mm. Patagia brown. Ground color of forewing white; costal margin and spot on posterior margin brown; fringes and traces of reticulate pattern brown; undersurface brown. Outer margin of hindwing with two short pointed processes; fringes brown; postmedial line brown; undersurface white. Does not resemble any American species known. Superficially resembles the Samoan *Epiplema amygdalipennis* Warren. Genitalia as figured.

Female 9.5 mm. Similar to but larger than male. Reticulate brown pattern prominent. The star shaped signum on the bursa is a distinctive feature of the genitalia.

DISTRIBUTION. Endemic species.

HOLOTYPE. Male. Fernandina (Narborough), 2-5 April 1906, F. X. Williams. CAS.

PARATYPES. 'Isabela (Albemarle)', Volcan Sierra Negra (= Santo Tomas), Corazon Verde, 360 m., January 1971. R. Perry & Tj. de Vries, BMNH; '(N. Albemarle) Isabela', 11 April 1902, R. H. Beck ex. Rothschild Bequest, BMNH. Both specimens are females.

BIOLOGY. No data available.

Family SPHINGIDAE

Agrius cingulatus (Fabricius).

(Figure 1.)

Sphinx cingulata FABRICIUS, 1775, Systema Entomologiae, p. 545. Type material: America (not found by Zimsen, 1964, p. 519).

Herse cingulata (Fabricius): KERNBACH, 1962, Opuscula Zoologica, München, vol. 63, p. 1.

Kernbach did not separate Galápagos specimens as a subspecies.

DISTRIBUTION. Widely distributed in the neotropics. *Galápagos Islands*: Baltra, April; Floreana, March, April; Isabela, March-May, August; San Cristóbal, February, March; Santa Cruz, January-June, October-December; Wolf, February. AMNH, BMNH, CAS, CMP, IRSNB, MCZ, NR, ZSBS.

BIOLOGY. Found from sea-level to summits of principal volcanos; visits flowers of *Opuntia*, *Ipomoea*, and *Cacabus miersii* during the day. *Foodplants*. *Ipomoea* species occur in the archipelago, upon which the larvae feed in the U.S.A. *Larvae*. Not reared by Perry and de Vries but a description appears in Williams (1911).

Manduca sexta leucoptera (Rothschild & Jordan), new combination.

(Figure 2.)

Protoparce leucoptera ROTHSCHILD & JORDAN, 1903, Novitates Zoologicae, vol. 9, Suppl., p. 79. Holotype, female (examined): Galápagos: Chatham [San Cristóbal], BMNH.

Protoparce sexta leucoptera Rothschild & Jordan: KERNBACH, 1962, Opuscula Zoologica, München, vol. 63, p. 2.

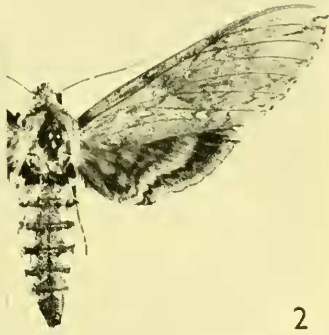
The stronger yellow lateral areas on the abdomen and the less conspicuous reniform spot separate this insect from the lighter forms of *Manduca rustica calapagensis*.

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FIGURE 1. *Agrius cingulatus* (Fabricius), female, Santa Cruz ($\times 1$). FIGURE 2. *Manduca sexta leucoptera* (Rothschild & Jordan), female, Santa Cruz ($\times \frac{3}{4}$). FIGURE 3. *M. rustica calapagensis* (Holland), male, Santa Cruz ($\times \frac{3}{4}$). FIGURE 4. *Eumorphia labruscae yupanquii* (Kernbach), male, Santa Cruz ($\times \frac{3}{4}$). FIGURE 5. *Erinnyis alope dispersa* Kernbach, female, paratype, Santa Cruz ($\times 1$). FIGURE 6. *Eumorphia fasciata tupaci* (Kernbach), female, Santa Cruz ($\times 1$).



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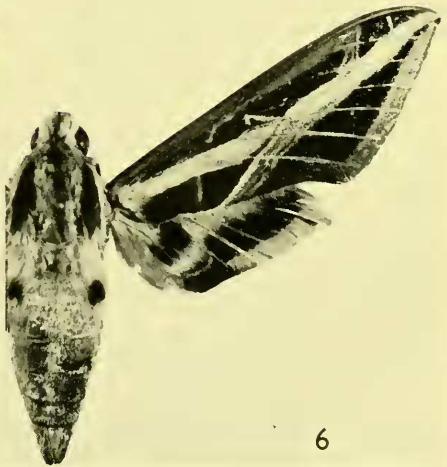
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DISTRIBUTION. Endemic subspecies of the widespread neotropical insect. *Galápagos Islands*: Floreana, January, February; Isabela, March–May; San Cristóbal, March; Santa Cruz, January–June. AMNH, BMNH, CAS, CMP, IRSNB, MCZ, ZSBS.

BIOLOGY. Common in years with prolonged rainy season; wings when at rest held higher above body than in *M. rustica calapagensis*. *Foodplant*. *Physalis pubescens*. *Larva*. Green, pale to white dorsally; seven oblique lateral stripes blackish followed by yellow; anal horn red.

***Manduca rustica calapagensis* (Holland), new combination.**

(Frontispiece and figure 3.)

Protoparce calapagensis HOLLAND, 1889, Proc. U.S. Nat. Mus., vol. 12, p. 195. Holotype (examined): Galápagos: Charles [Floreana]; USNM.

Protoparce rustica calapagensis Holland: ROTHSCHILD & JORDAN, 1903, Novitates Zoologicae, vol. 9, Suppl., p. 85.

Protoparce rustica calapagensis ab. *nigrita* ROTHSCHILD & JORDAN, 1903, Novitates Zoologicae, vol. 9, Suppl., p. 86.

Protoparce postscripta CLARK, 1926, Proc. New Eng. Zool. Club, vol. 9, p. 70.

Protoparce rustica calapagensis Holland: KERNBACH, 1962, Opuscula Zoologica, München, vol. 63, p. 4.

This insect exhibits considerable variation ranging from dark brown through gold to white in basic coloration. Williams (1911) and Kernbach (1962) give excellent coverage concerning this and other Galápagos Sphingidae.

DISTRIBUTION. Endemic subspecies of the widespread neotropical insect. *Galápagos Islands*: Baltra, April; Española, February; Floreana, January–April; Genovesa, February–April; Isabela, February–April, July; San Cristóbal, February–April; Santa Cruz, January–July. AMNH, BMNH, CAS, CMP, IRSNB, MCZ, NR, USNM, ZSBS.

BIOLOGY. Widespread, usually the most abundant sphingid. *Foodplants*. *Clerodendrum molle*, *Cordia lutea*, *Cordia leucophlyctis*. *Larva*. Variable; green to purplish with yellow granules; oblique stripes purple edged with white; anal horn yellowish green. The darker forms appear to be prevalent at times of great abundance of these larvae, when foodplants are virtually stripped of foliage (see frontispiece).

***Erinnyis alope dispersa* Kernbach.**

(Figure 5.)

Erinnyis alope dispersa KERNBACH, 1962, Opuscula Zoologica, München, vol. 63, p. 9. Paratype female (examined): Galápagos: Santa Cruz; BMNH.

Although very close to the mainland species I have found that aedeagus differences mentioned by Kernbach separate it.

DISTRIBUTION. Endemic subspecies of the widespread neotropical insect. *Galápagos Islands*: Santa Cruz, March–May. BMNH, CAS, ZSBS.

BIOLOGY. A single adult was taken on Santa Cruz on 1 March 1967. Subsequently, a mature larva was found on 16 March, and the adult reared from this emerged on 5 April 1967. *Larva.* Buff, darker above with indistinct transverse markings; pink between 1st and 2nd segments; prominent dark spot with inner, lighter ring on 3rd; stigmata with yellowish discs; anal horn short, slightly curved, buff. *Foodplants.* *Carica papaya*, species of *Jatropha* and *Allamanda* are listed as foodplants by Hodges (1971) and Kimball (1965).

***Erinnyis ello encantada* Kernbach.**

(Figures 13 & 14.)

Erinnyis ello encantada KERNBACH, 1962, Opuscula Zoologica, München, vol. 63, p. 10. Paratype female (examined): Galápagos: Santa Cruz; BMNH.

Sexually dimorphic. Kernbach states this subspecies is smaller and lighter in coloration than mainland representatives.

DISTRIBUTION. Endemic subspecies of the widespread neotropical insect. *Galápagos Islands:* Floreana, March, May; Isabela, March–May; San Cristóbal, February–March, July; Santa Cruz, January–June, August, October. AMNH, BMNH, CAS, CMP, IRSNB, MCZ, RSM, ZSBS.

BIOLOGY. *Foodplant.* *Hippomane mancinella.* *Larva.* From the Galápagos Islands Curio (1965) describes 3 types of larva of this subspecies which vary in color, pattern, and behavior.

***Erinnyis obscura conformis* Rothschild & Jordan.**

(Figure 12.)

Erinnyis obscura conformis ROTHSCHILD & JORDAN, 1903, Novitates Zoologicae, vol. 9, Suppl., p. 369. Holotype, male (examined): Galápagos: Albemarle [Isabela]; BMNH.

The males lack the dark line on the forewing found in *Erinnyis obscura obscura* Fabricius.

DISTRIBUTION. Endemic subspecies of the widespread neotropical insect. *Galápagos Islands:* Baltra, April; Floreana, March–May; Isabela, January–June, August; Pinzón, April; Santa Cruz, January–April, June, August–October. AMNH, BMNH, CAS, CMP, IRSNB, MCZ, NR, RSM, ZSBS.

BIOLOGY. *Foodplant.* *Sarcostemma angustissima.* *Larva.* Gray; anal horn short. Williams (1911) refers to a second type which is pale green.

***Enyo lugubris delanoi* (Kernbach), new combination.**

(Figures 7 & 8.)

Epistor lugubris delanoi KERNBACH, 1962, Opuscula Zoologica, München, vol. 63, p. 11. Paratype male (examined): Galápagos: Santa Cruz; BMNH.

A smaller insect than the nominate subspecies.

DISTRIBUTION. Endemic subspecies of the widespread neotropical insect.



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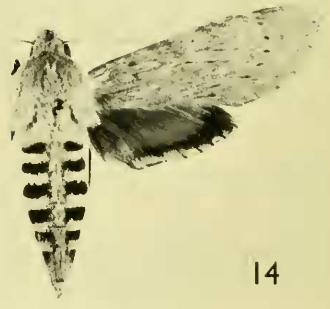
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Galápagos Islands: Isabela, no month; Santa Cruz, January–June, December. AMNH, BMNH, CAS, MCZ, ZSBS.

BIOLOGY. A species more of the damper inland regions of the islands. *Food-plant*. *Cissus sicyoides* from Williams (1911).

***Pachygonia drucei* Rothschild & Jordan.**

(Not figured.)

Pachygonia drucei ROTHSCHILD & JORDAN, 1903, *Novitates Zoologicae*, vol. 9, Suppl., p. 411.

Holotype, male (examined): [Panama]: Chiriquí; BMNH.

Doubtfully included, based on the specimen mentioned below which may well have been taken on the Cocos Islands.

DISTRIBUTION. Ecuador, Panama, and Honduras. Included here on the basis of one male specimen labeled Galápagos & Cocos Islands. A. J. Drexel. BMNH.

BIOLOGY. No data available.

***Eumorpha fasciata tupaci* (Kernbach), new combination.**

(Figure 6.)

Pholus fasciatus tupaci KERNBACH, 1962, *Opuscula Zoologica*, München, vol. 63, p. 12.

Holotype (photograph examined): Galápagos: Santa Cruz; ZSBS.

Kernbach states that the forewing stripes show a more conspicuous pink tinge in this subspecies.

DISTRIBUTION. Endemic subspecies of the widespread neotropical insect. *Galápagos Islands*: Santa Cruz, February, April–May. BMNH, CAS, ZSBS.

BIOLOGY. Two fresh adults were taken on Santa Cruz in February 1967; there were no subsequent records for this species. Onograceae are listed as foodplants in the U.S.A.

***Eumorpha labruscae yupanquii* (Kernbach), new combination.**

(Figure 4.)

Pholus labruscae yupanquii KERNBACH, 1962, *Opuscula Zoologica*, München, vol. 63, p. 13.

Holotype (photograph examined): Galápagos: Santa Cruz; ZSBS.

As stated by Kernbach the male genitalia are more heavily chitinized than those of the nominate subspecies.

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FIGURE 7. *Enyo lugubris delanoi* (Kernbach), male, Santa Cruz (× 1). FIGURE 8. *E. lugubris delanoi* (Kernbach), female, Santa Cruz (× 1). FIGURE 9. *Xylophanes tersa* (Linnaeus), male, Santiago (× 1). FIGURE 10. *X. tersa* (Linnaeus), melanic male, Santiago (× 1). FIGURE 11. *X. norfolki* Kernbach, female, Santa Cruz (× 1). FIGURE 12. *Erinnyis obscura conformis* Rothschild & Jordan, male, Santa Cruz (× 1). FIGURE 13. *E. ello encantada* Kernbach, male, Santa Cruz (× 1; CAS). FIGURE 14. *E. ello encantada* Kernbach, female, Santa Cruz (× 1).

DISTRIBUTION. Endemic subspecies of the widespread neotropical insect. *Galápagos Islands*: Floreana, February, November; Santa Cruz, January–June, August. AMNH, BMNH, CAS, IRSNB, MCZ, RSM, ZSBS.

BIOLOGY. Adults not uncommon; inland and coastal regions of main islands. Larvae were not found by Perry and de Vries.

***Xylophanes norfolki* Kernbach.**

(Figure 11.)

Xylophanes norfolki KERNBACH, 1962, *Opuscula Zoologica*, München, vol. 63, p. 14. Holotype, male (photograph examined): Galápagos: Santa Cruz; ZSBS.

The characteristic forewing pattern of this endemic species readily separates it from *Xylophanes tersa*.

DISTRIBUTION. Endemic species. *Galápagos Islands*: Santa Cruz, January–June, July. AMNH, BMNH, CAS, IRSNB, ZSBS.

BIOLOGY. Adults have so far only been taken on Santa Cruz where the species is generally scarce and mainly restricted to inland regions. Larvae were not found by Perry and de Vries.

***Xylophanes tersa* (Linnaeus).**

(Figures 9 & 10.)

Sphinx tersa LINNAEUS, 1771, *Mantissa Plantarum*, vol. 2, p. 538. Type material: Maryland, Jamaica, Antigua; not traced.

One female reared by F. X. Williams and located in the California Academy of Sciences was the only known specimen. Dr. Tj. de Vries has recently taken specimens on Santiago including melanic examples (figure 10).

DISTRIBUTION. Widespread neotropical species. *Galápagos Islands*: San Cristóbal, February; Santiago, November. BMNH, CAS.

BIOLOGY. Kimball lists *Spermacoce* (Rubiaceae) as foodplant in Florida.

***Hyles lineata florilega* (Kernbach), new combination.**

(Figure 15.)

Celerio lineata florilega KERNBACH, 1962, *Opuscula Zoologica*, München, vol. 63, p. 16. Holotype (photograph examined): Galápagos: Santa Cruz; ZSBS.

A small but strikingly marked subspecies.

DISTRIBUTION. Endemic subspecies of the almost cosmopolitan insect. *Galápagos Islands*: Baltra, April; Española, April; Floreana, January, March–May; Isabela, April; San Cristóbal, February; Santa Cruz, January–June, October; Santiago, February, March. AMNH, BMNH, CAS, CMP, IRSNB, MCZ, RSM, USNM, ZSBS.

BIOLOGY. Adults. Widespread, diurnal, seasonally common. *Foodplants*.

Portulaca oleracea, *Commicarpus tuberosus*. Larva. Green with variable black and yellow markings; some purple near spiracles; anal horn long, curved, yellowish to red.

Family ARCTIIDAE

Utetheisa ornatrix (Linnaeus).

(Figures 18 & 19.)

Phalaena (Noctua) ornatrix LINNAEUS, 1758, *Systema Naturae* (10th Ed.), vol. 1, p. 511.
Type material: America; IZ.

This day-flying species is, I believe, the insect mentioned by Eibl-Eibesfeldt (1960, p. 99).

DISTRIBUTION. Widespread neotropical species. *Galápagos Islands*: Gardner near Española, April; Isabela, April, June, August; San Cristóbal, January, February, April–June; Santa Cruz, January–April, June, September, October, December; Santiago, March, April. AMNH, BMNH, CAS, IRSNB, MCZ, RSM, USNM, ZSBS.

BIOLOGY. More restricted than *U. galapagensis* yet conspicuous and abundant at times in open, moister areas. Larvae were not collected by Perry and de Vries, but species of *Crotalaria*, the host-plants elsewhere, are widespread in the archipelago.

Utetheisa devriesi Hayes, new species.

(Figures 24–26, 175, & 176.)

DESCRIPTION. Male 20.5 mm. Antenna bipectinate. Palpus dark brown with some gray scaling. Forewing gray with dark brown scaling at margin and on median line. Hindwing gray with brown scaling at margin. Genitalia: the uncus structure distinguishes this species.

Female 22 mm. Antenna simple. Similar to male in maculation but with broader forewing. Genitalia: the considerable spicular ornamentation at the base of the ductus bursae distinguishes the genitalia.

Larger than, but closely related to *U. galapagensis*. The prominent darker shade on the median line also separates this species. Lacks the yellowish buff coloration of *U. perryi*.

DISTRIBUTION. Endemic species.

HOLOTYPE. Male. Pinta, Highlands, southern slope at approximately 500 m.; *Zanthoxylum* forest with undergrowth of *Tournefortia* shrub; 13–15 October 1973. BMNH.

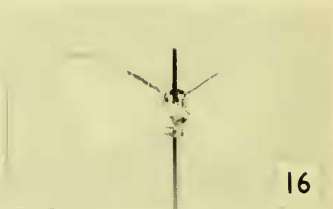
PARATYPES. Same data, BMNH (27 specimens).

OTHER MATERIAL. A melanic male with the same data as the types (BMNH) although excluded from the type-series is tentatively placed here (fig. 26).

BIOLOGY. No data available.



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Utetheisa galapagensis (Wallengren).

(Figures 22 & 23.)

Euchelia galapagensis WALLENGREN, 1860, Wiener entomologische Monatschrift, vol. 4, p. 161. Holotype, female (examined): Galápagos; NR.

The more grayish coloration and genitalic differences separate this species from *U. perryi*. A smaller moth than *U. devriesi*.

DISTRIBUTION. Endemic species. *Galápagos Islands*: Baltra, April; Fernandina, February; Floreana, January, February, July; Isabela, January, March, April, August; Pinta, September, October; San Cristóbal, February, September; Santa Cruz, January–December; Santiago, January, July, November, December. AMNH, BMNH, CAS, CU, IRSNB, MCZ, RSM, USNM.

BIOLOGY. Adults. Abundant generally in coastal and upland regions of main islands. On Santa Cruz often flying before dusk around plants of *Scalesia affinis*. *Foodplants*. *Tournefortia pubescens*, *T. psilostachya*. *Larva*. Grayish and brownish black with buff markings shading to pale buff below.

Utetheisa perryi Hayes, new species.

(Figures 20, 21, 171, & 172.)

DESCRIPTION. Male 16.5 mm. Antenna bipectinate. Palpus covered with dark brown and yellowish buff scales. Head, thorax, and forewing yellowish buff. Forewing irroration dark brown and black. Two such areas forming reniform spot. Hindwing yellowish cream, margin with dark brown markings and strongly marked discal spot. Genitalia: the uncus formation is diagnostic.

Female 16 mm. Antenna simple. Similar to male in basic coloration. Scaling on forewing forming longitudinal streak in some specimens.

The yellowish buff coloration separates this species from *U. devriesi* and *U. galapagensis*.

DISTRIBUTION. Endemic species.

HOLOTYPE. Male. Santiago, 580 m., November/December 1970. J. Villa & J. Black. BMNH.

PARATYPES. Isabela, January, February, October; Santiago, November, December; Santa Cruz, February, March, June. AMNH (2 specimens), BMNH (43 specimens), CAS (5 specimens).

BIOLOGY. Collected in transition and humid zones.

←

FIGURE 15. *Hyles lineata florilega* (Kernbach), male, Santa Cruz (× 2). FIGURE 16. *Epiplema becki* Hayes, new species, holotype, male, Fernandina (× 2; CAS). FIGURE 17. *E. becki* Hayes, new species, paratype, female, Isabela (× 2). FIGURE 18. *Utetheisa ornatrix* (Linnaeus), male, Santa Cruz (× 2). FIGURE 19. *U. ornatrix* (Linnaeus), female, Santa Cruz (× 2).

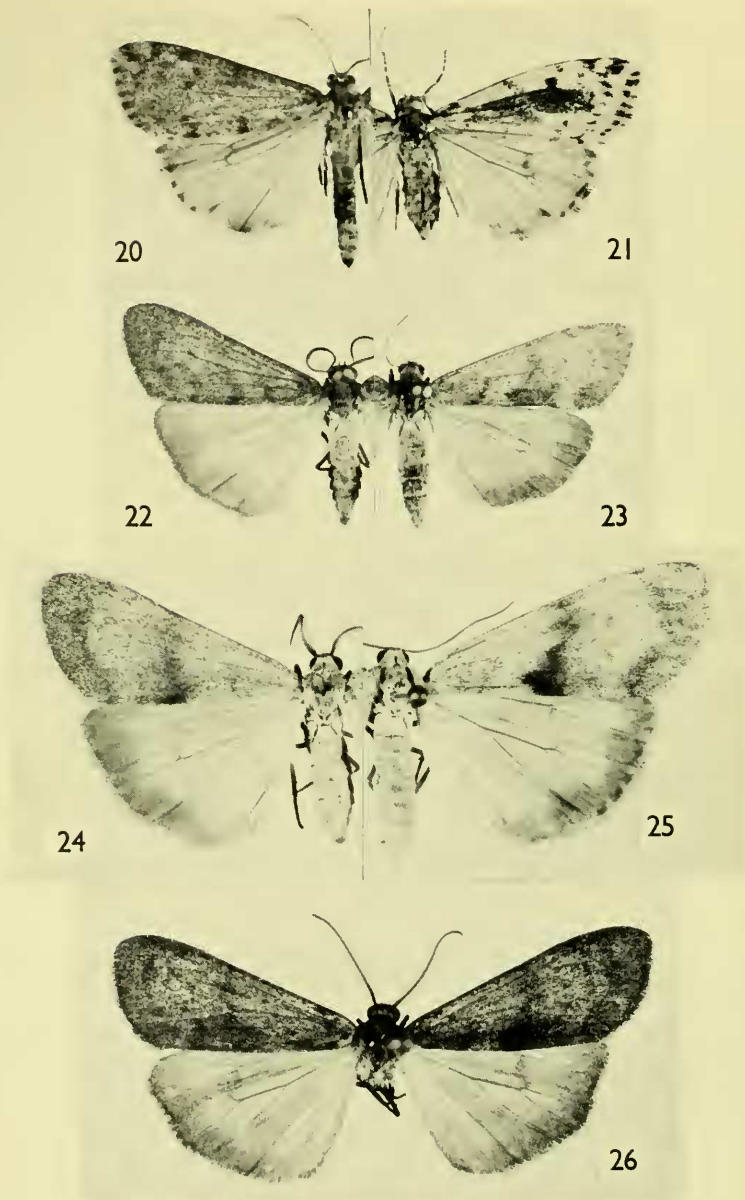


FIGURE 20. *Utetheisa perryi* Hayes, new species, holotype, male, Santiago ($\times 2$). FIGURE 21. *U. perryi* Hayes, new species, paratype, female, Santiago ($\times 2$). FIGURE 22. *U. galapagensis* (Wallengren), male, Santiago ($\times 2$). FIGURE 23. *U. galapagensis* (Wallengren), female, Santiago ($\times 2$). FIGURE 24. *U. devriesi* Hayes, new species, holotype, male, Pinta ($\times 2$). FIGURE 25. *U. devriesi* Hayes, new species, female, paratype, Pinta ($\times 2$). FIGURE 26. *U. devriesi* Hayes, new species, melanic male, Pinta ($\times 2$).

Family NOCTUIDAE

NOCTUINAE

Agrotis consternans Hayes, new species.

(Figures 27, 28, 173, & 174.)

DESCRIPTION. Male 15 mm. Antenna strongly bipectinate. Palpus dark brown. Thorax dark brown. Forewing midbrown with basal, antemedial, and postmedial lines buff edged with black. A broad black streak runs from the reniform through the orbicular spot. Hindwing cream with gray postmedian line and marginal shade. Genitalia as figured.

Female 16.5 mm. Similar to male in basic coloration. Costal margin yellowish buff, prominent.

Allied to *A. bosqi* Kohler, *A. fasicola* Dyar, and *A. lutescens* Blanchard, the orbicular and reniform spot and the strongly bipectinate male antenna separate this species.

DISTRIBUTION. Endemic species.

HOLOTYPE. Male. Pinta, 630 m., November 1970. BMNH.

PARATYPES. Isabela, August; Pinta, October, November; San Cristóbal, April; Santa Cruz, March–June, November; Santiago, November. BMNH (92 specimens), CAS (29 specimens), MCZ (2 specimens), ZSBS (1 specimen).

BIOLOGY. No data available.

Agrotis ipsilon (Hufnagel).

(Figures 31 & 32.)

Phalaena ipsilon HUFNAGEL, 1766, Berlinisches Magazin, vol. 3, p. 416. Type material: Germany: Berlin; not traced.

A well known species.

DISTRIBUTION. Almost cosmopolitan. *Galápagos Islands*: Isabela, March; San Cristóbal, April; Santa Cruz, January–July. AMNH, BMNH, CAS, MCZ.

BIOLOGY. Not reared on the Galápagos Islands. Another general feeder. Kimball and Zimmerman give good coverage of crop damage, etc. Known as the Greasy Cutworm in the U.S.A.

Agrotis subterranea williamsi (Schaus), new combination.

(Figures 29 & 30.)

Euxoa williamsi SCHAUS, 1923, Zoologica, vol. 5, p. 32. Lectotype female (examined): Galápagos: Indefatigable [Santa Cruz]; USNM.

Feltia annexa (Treitschke): RICHARDS, 1941, Allan Hancock Pacific Expedition, vol. 5, p. 235.

Scotia galapagosensis KÖHLER, 1961, Anales de la Sociedad Científica Argentina, vol. 172, pp. 71–72. New synonym.

The strongly pectinate male antenna and very dark forewing of the female separate this subspecies. Hindwing of both sexes with some brown scales.

DISTRIBUTION. Endemic subspecies of the widespread new world species.

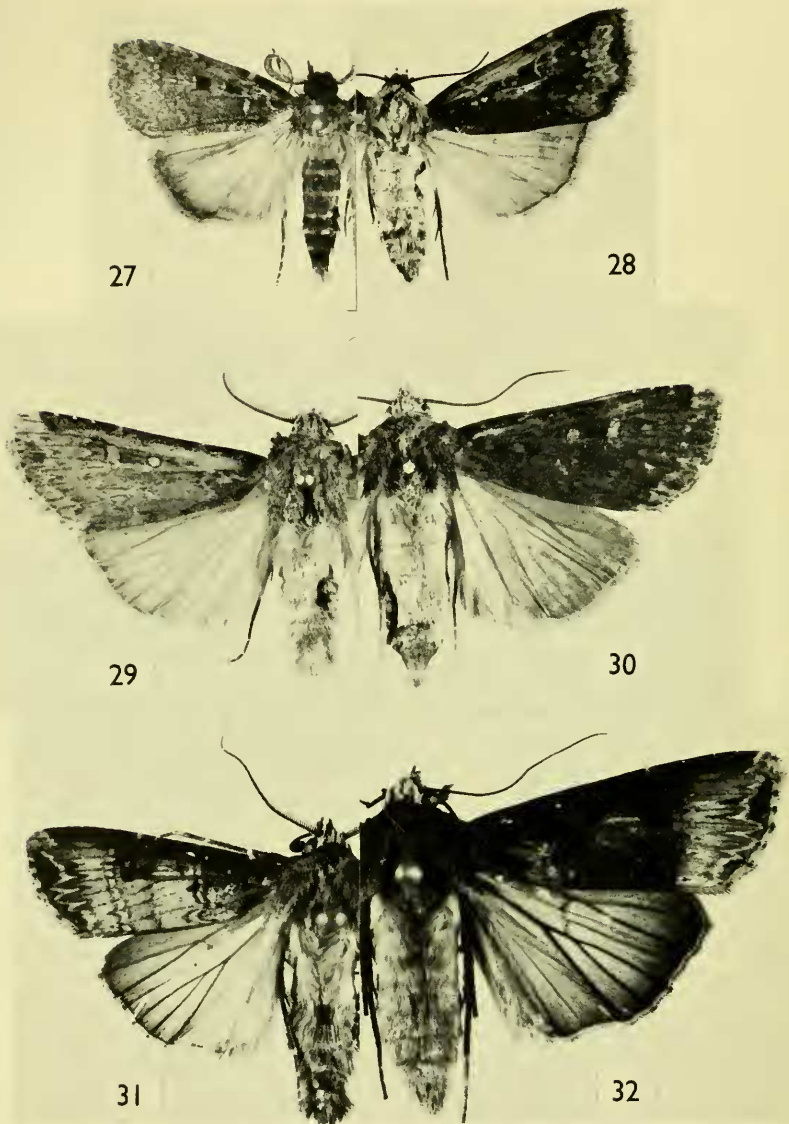


FIGURE 27. *Agrotis consternans* Hayes, new species, holotype, male, Pinta ($\times 2$).
 FIGURE 28. *A. consternans* Hayes, new species, paratype, female, Santa Cruz ($\times 2$). FIGURE
 29. *A. subterranea williamsi* (Schaus), male, Santiago ($\times 2$). FIGURE 30. *A. subterranea*
williamsi (Schaus), female, Santa Cruz ($\times 2$). FIGURE 31. *A. ipsilon* (Hufnagel), male,
 Santa Cruz ($\times 2$). FIGURE 32. *A. ipsilon* (Hufnagel), female, Santa Cruz ($\times 2$).

Galápagos Islands: Baltra, April; Fernandina, February; Isabela, March, April, August; Pinta, May, October; Santa Cruz, January–July, October; Santiago, March, April, July, November. AMNH, BMNH, CAS, IRSNB, MCZ, USNM.

BIOLOGY. Larvae not found on the islands. Tietz (1972, p. 622) records the larvae of the nominate subspecies, the Granulate Cutworm, on a wide variety of plants.

***Peridroma saucia* (Hübner).**

(Figure 40, Mexican specimen.)

Noctua saucia HÜBNER, [1808], Sammlung europäischer Schmetterlinge, vol. 4, fig. 378.

Type material: Europe; not traced.

Peridroma margaritosa (Haworth) sensu RICHARDS, 1941, Allan Hancock Pacific Expedition, vol. 5, p. 235. Misidentification.

I have only examined 3 very worn specimens from the Galápagos Islands. These specimens have been identified on genitalic characters.

DISTRIBUTION. Europe, North Africa, Asia, North America, South America, Hawaii. *Galápagos Islands*: Floreana (Charles), 1300 ft., 1939, USC (2 ♂, 1 ♀).

BIOLOGY. Larvae not reared on the Galápagos Islands. Another general feeder, known as the Variegated Cutworm; Tietz (1972) lists a wide variety of foodplants including many crop species.

***Psaphara conwayi* (Richards), new combination.**

(Figures 37 & 38.)

Peridroma conwayi RICHARDS, 1941, Allan Hancock Pacific Expedition, vol. 5, p. 235.

Holotype, male (photograph examined): Galápagos: Charles [Floreana]; USC.

This species is closely allied to *Psaphara interclusa* Walker. I am taking the genus out of synonymy to contain these two species which on genitalic evidence merit separation from *Peridroma*. Genitalia figured by Richards (1941).

DISTRIBUTION. Endemic species. *Galápagos Islands*: Floreana, no month; Isabela, January; Pinta, October; Santa Cruz, April. BMNH, CAS, USC.

BIOLOGY. No data available.

***Psaphara interclusa* Walker, revived combination.**

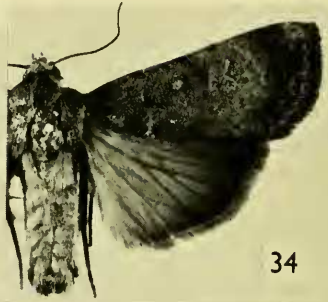
(Figures 35, 36, & 163.)

Psaphara interclusa WALKER, 1857, List of the Specimens of Lepidopterous Insects in the Collection of the British Museum, vol. 11, p. 607. Holotype, male (examined): West Coast of America [Galápagos]; BMNH.

The type is labeled "W. Coast of America, Kellett and Wood, 1850–12." Naval records (Seemann, 1853) disclose that H.M.S. *Herald*, captained by Sir Henry Kellett C. B., and H.M.S. *Pandora*, captained by Lt. Wood, visited the Galápagos Islands 6–16 January 1846, anchoring at Floreana, San Cristóbal, and Santiago islands. The only additional material is a pair collected by Silberglied near 'El Junco' crater lake on San Cristóbal, the female of which



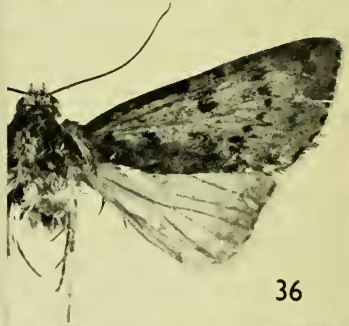
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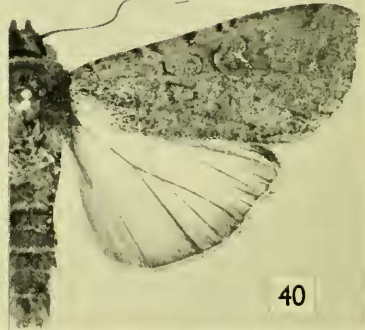
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is deposited in the BMNH. Both specimens match the type and this strongly suggests that the latter originated from the archipelago. Much historic material in the BMNH is labeled "W. Coast of America" and a proportion appears to have been taken on the Galápagos Islands.

DISTRIBUTION. Endemic species. *Galápagos Islands*: San Cristóbal, April. BMNH, MCZ.

BIOLOGY. No data available.

Anicla oceanica (Schaus), new combination.

(Figures 33 & 34.)

Lycophotia oceanica SCHAU, 1923, *Zoologica*, vol. 5, p. 32. Holotype, female (examined): Galápagos: South Seymour [Baltra]; USNM.

Lycophotia oceanica Schaus: TODD, 1973, *Proc. Ent. Soc. Washington*, vol. 75, p. 35 (Type specimen discussed).

A common insect on the Galápagos Islands. Sexes much alike but specimens show some variation in basic coloration from pinkish to grayish brown. Allied to *Anicla infecta* Ochseneheimer.

DISTRIBUTION. Endemic species. *Galápagos Islands*: Baltra, April; Isabela, March, April, August; Pinta, October; Pinzón, April; Santa Cruz, January–April, June, August–October, December; Santiago, March, July. AMNH, BMNH, CAS, IRSNB, MCZ, RSM, USNM.

BIOLOGY. No data available.

HELIOTHINAE

Heliothis cystiphora (Wallengren)

(Figures 41 & 42.)

Anthoecia cystiphora WALLENGREN, 1860, *Wiener Entomologische Monatschrift*, vol. 4, p. 172. Holotype, female: 'Panama'; NR.

Anthoecia inflata WALLENGREN, 1860, *Wiener Entomologische Monatschrift*, vol. 4, p. 172.

Anthoecia onca WALLENGREN, 1860, *Wiener Entomologische Monatschrift*, vol. 4, p. 172.

Sexually dimorphic, the male possessing two prominent sensory patches on the forewing. A common species, well represented in collections.

DISTRIBUTION. Neotropical species. *Galápagos Islands*: Baltra, April; Española, May; Fernandina, February, April; Floreana, February–May; Gardner near Española, February; Genovesa, April; Isabela, February–April;

←

FIGURE 33. *Anicla oceanica* (Schaus), male, Santa Cruz ($\times 2$). FIGURE 34. *A. oceanica* (Schaus), female, Santa Cruz ($\times 2$). FIGURE 35. *Psaphara interclusa* Walker, holotype, male, 'W. Coast of America' (Galápagos) ($\times 2$ reversed). FIGURE 36. *P. interclusa* Walker, female, San Cristóbal ($\times 2$). FIGURE 37. *P. conwayi* (Richards), male, Isabela ($\times 2$). FIGURE 38. *P. conwayi* (Richards), female, Pinta ($\times 2$). FIGURE 39. *Heliothis virescens* (Fabricius), female, Santa Cruz ($\times 2$). FIGURE 40. *Peridroma saucia* (Hübner), male, Mexico ($\times 2$).

San Cristóbal, February, March; Santa Cruz, January–June; Santiago, March, April. AMNH, BMNH, CAS, IRSNB, LACM, MCZ, USNM.

BIOLOGY. A fast-flying species, visiting flowers during day; common in March 1969 at plants of *Encelia hispida* in the inland parts of Santa Fé. *Foodplant.* *Sporobolus virginicus*. *Larva.* Head yellow with black spots. Body with central gray stripe bordered by yellow, reddish brown, and white; overlain with black spots; undersurface yellowish green.

***Heliothis virescens* (Fabricius).**

(Figure 39.)

Noctua virescens FABRICIUS, 1781, Species Insectorum, vol. 2, p. 216. Type material: [Virgin Islands]: St. Crux [St. Croix]; not traced.

Some variation in the hindwing coloration is common in series of this moth.

DISTRIBUTION. Widely distributed in the neotropics. *Galápagos Islands:* Floreana, July; Genovesa, April; Isabela, January–April, August; Pinta, May, October; San Cristóbal, February, April; Santa Cruz, January–April, June, July, October, December; Santiago, July. AMNH, BMNH, CAS, IRSNB, MCZ.

BIOLOGY. *Foodplants.* *Passiflora foetida*, *Scalesia affinis*. *Larva.* Head yellow. Body yellowish to brownish green merging into emerald below; some orange dorsally; black median and lateral lines; prominent black spots at bases of setae. Known as the Tobacco Budworm in the U.S.A. where it has been recorded on an extensive variety of plants.

HADENINAE

***Mythimna solita* (Walker).**

(Figure 43.)

Leucania solita WALKER, 1856, List of the Specimens of Lepidopterous Insects in the Collection of the British Museum, vol. 9, p. 99. Holotype, male (examined): BMNH.

The longitudinal streak on the forewing and the white hindwing are features of this species.

DISTRIBUTION. Widespread neotropical species. *Galápagos Islands:* San Cristóbal, April; Santa Cruz, February, March, May, June, October–December. AMNH, BMNH, CAS, IRSNB, MCZ.

BIOLOGY. *Foodplant.* *Sporobolus virginicus*. *Larva.* Head gray with brown reticulation. Body reddish brown with darker markings and diffuse white lines.

***Mythimna latiuscula* (Herrich-Schäffer).**

(Not figured.)

Leucania latiuscula HERRICH-SCHÄFFER, 1868, Korrespondenz-Blatt des Zoologisch-Mineralogischen Vereines in Regensburg, vol. 22, p. 148. Type material: Cuba.

A specimen of this species was mailed to me after I had prepared the plates. It is figured by Draudt in Seitz, *Macrolepidoptera of the World*, vol. 7, pl. 24.

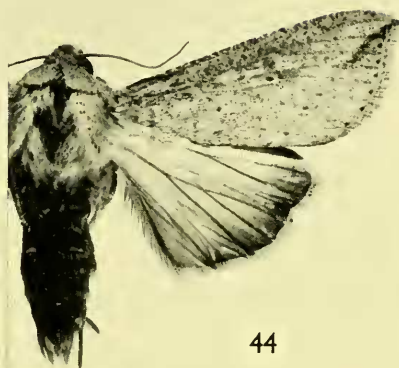


FIGURE 41. *Heliiothis cystiphora* (Wallengren), male, Floreana ($\times 2$). FIGURE 42. *H. cystiphora* (Wallengren), female, Isabela ($\times 2$). FIGURE 43. *Mythimna solita* (Walker), male, Santa Cruz ($\times 2$). FIGURE 44. *Pseudaletia sequax* Franclemont, male, Santa Cruz ($\times 2$). FIGURE 45. *P. cooperi* (Schaus), male, Santa Cruz ($\times 2$). FIGURE 46. *P. cooperi* (Schaus), female, Santa Cruz ($\times 2$).

It is more drab than *M. solita* and lacks the longitudinal white streak on the forewing.

DISTRIBUTION. Widely distributed in the neotropics. *Galápagos Islands*: San Cristóbal, 'El Junco' crater lake, 700 m., April. MCZ.

BIOLOGY. Not reared on the Galápagos Islands. Tietz (1972) lists graminaceous foodplants.

***Pseudaletia sequax* Franclemont.**

(Figure 44.)

Pseudaletia sequax FRANCLEMONT, 1951, Proc. Ent. Soc. Washington, vol. 53, p. 70. Holotype, male (examined): Jalapa, Mexico; USNM.

Genitalia compared with Franclemont's figure and paratypes in the BMNH.

DISTRIBUTION. Widespread neotropical species. Franclemont gives full coverage. *Galápagos Islands*: Isabela, February; San Cristóbal, April; Santa Cruz, January–April, June, August, October, December. AMNH, BMNH, CAS, IRSNB, LACM, MCZ, RSM.

BIOLOGY. No data available. Related species are general feeders.

***Pseudaletia cooperi* (Schaus).**

(Figures 45 & 46.)

Cirphis cooperi SCHAUS, 1923, Zoologica, vol. 5, p. 33. Holotype, female (examined): Galápagos: Indefatigable [Santa Cruz]; USNM.

Pseudaletia cooperi Schaus: FRANCLEMONT, 1951, Proc. Ent. Soc. Washington, vol. 53, p. 64.

Both sexes figured.

DISTRIBUTION. Endemic species. *Galápagos Islands*: Isabela, March, August; Pinta, October; San Cristóbal, April; Santa Cruz, January–June, September–November; Santiago, November. BMNH, CAS, IRSNB, MCZ, USNM.

BIOLOGY. No data known.

ACRONICTINAE

***Magusa erema* Hayes, new species.**

(Figures 53, 54, & 155.)

Magusa orbifera Walker sensu SCHAUS, 1923, Zoologica, vol. 5, p. 24 [Misidentification].

DESCRIPTION. Male 21.5 mm. Antenna simple. Palpus, head, thorax, and forewing dark brown. Prominent white apical mark on forewing. Abdomen and hindwing grayish brown. Genitalia as figured. Valve process short.

Female 20 mm. Similar to male but with broader forewing.

Although reddish brown coloration occurs on the forewing of some specimens, a series of this insect does not exhibit the extreme variation shown by its nearest

relative *Magusa orbifera* Walker. The short valve process of the male genitalia also separates *M. erema*.

DISTRIBUTION. Endemic species.

HOLOTYPE. Male. Santa Cruz, December 1968, R. Perry and Tj. de Vries. BMNH.

PARATYPES. Isabela, April; San Cristóbal, April; Santa Cruz, January–May, July, August, October, December; Santa Fé, April. AMNH (1 specimen), BMNH (16 specimens), CAS (1,058 specimens), IRSNB (6 specimens), MCZ (143 specimens), RSM (3 specimens).

BIOLOGY. *Foodplant*. *Scutia pauciflora*. *Larva*. Green with paired, interrupted lines of gray-black and yellowish and creamy white stripes; some purple around legs and prolegs.

Trachea cavagnaroi Hayes, new species.

(Figures 49, 50, & 156.)

DESCRIPTION. Male 17 mm. Antenna strongly bipectinate. Palpus dark brown and buff. Forewing with dark and mid brown patterning. Burnished orbicular and reniform spots. Marginal band and discal spot of hindwing gray. Remainder of hindwing yellowish gold. Genitalia as figured.

Female 19–22 mm. Antenna simple. Broader winged but similar to male in maculation. Conspicuous buff pattern in apical area and bordering terminal line of forewing.

Only one male and two females of this species have been taken. Provisionally placed in the genus *Trachea*. Does not resemble any known species.

DISTRIBUTION. Endemic species.

HOLOTYPE. Male. Santa Cruz, Horneman Farm, 220 m., 3 May 1964. D. Q. Cavagnaro. CAS.

PARATYPES. Santa Cruz, Grasslands, 750 m., 10 April 1964. D. Q. Cavagnaro. CAS. (2 females.)

BIOLOGY. No data known.

Cropia infusa (Walker).

(Figures 47 & 48.)

Decelea infusa WALKER, [1858] 1857, List of the Specimens of Lepidopterous Insects in the Collection of the British Museum, vol. 13, p. 1116. Holotype, female (examined): America but no data; BMNH.

Few specimens of this species have been collected on the Galápagos Islands. Although somewhat smaller than mainland examples, no striking genitalic differences separate Galápagos Islands specimens.

DISTRIBUTION. Widespread neotropical species. *Galápagos Islands*: Española, May; Fernandina, February; Gardner near Española, April; Genovesa, Feb-



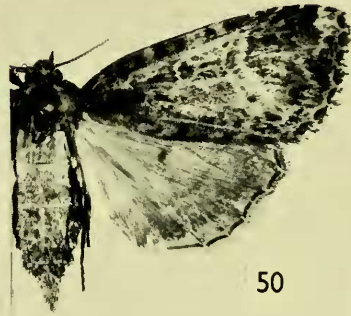
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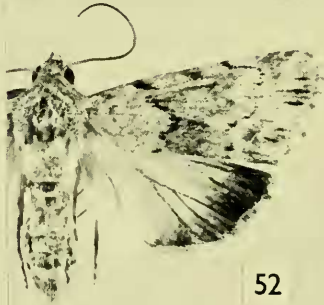
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ruary, March; Isabela, March; Santa Cruz, January, June; Santiago, July. AMNH, BMNH, CAS, MCZ.

BIOLOGY. No data known.

Callopistria floridensis (Guenée).

(Figure 51.)

Eriopus floridensis GUENÉE, 1852, in Boisduval & Guenée, Histoire Naturelle des Insectes. Lépidoptères, vol. 6, p. 292. Holotype, male (examined): [U.S.A.]: Florida; BMNH.

Identical with mainland specimens.

DISTRIBUTION. Widespread neotropical species. *Galápagos Islands*: Isabela, January, August; Pinta, October; San Cristóbal, April; Santa Cruz, January–July. AMNH, BMNH, CAS, IRSNB, MCZ.

BIOLOGY. Not reared on the Galápagos Islands. Known as the Florida Fern caterpillar in the U.S.A.

Catabena seorsa Todd.

(Figure 52.)

Catabena seorsa TODD, 1972, Jour. Washington Acad. Sci., vol. 62, no. 1, p. 38. Holotype, male (examined): Galápagos: Santa Cruz; CAS. Todd (1972) gives full coverage. Schaus (1923, p. 25) referred to a specimen now located in AMNH as a *Catabena* species? too poor to identify.

DISTRIBUTION. Endemic species. *Galápagos Islands*: Marchena, September, November; Española, September; Floreana, April, June, July; Genovesa, February–April; Isabela, January, March, August, October, November; Pinzón, April; San Cristóbal, February; Santa Cruz, January–May, October, December. AMNH, BMNH, CAS, IRSNB, MCZ, USNM, ZSBS.

BIOLOGY. Arid zones, generally. *Foodplant*. *Lantana peduncularis*. *Larva*. Head gray with black and orange markings. Body gray and black with fine lines of orange, yellow, and white. Pupation is within a parchmentlike cocoon.

Neogalea esula longfieldae Hayes, new subspecies.

(Figures 55 & 56.)

The extensive fuscous margin of the hindwing separates Galápagos specimens from the nominate subspecies.

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FIGURE 47. *Cropia infusa* (Walker), male, Española ($\times 2$). FIGURE 48. *C. infusa* (Walker), female, Santiago ($\times 2$). FIGURE 49. *Trachea cavagnaroi* Hayes, new species, holotype, male, Santa Cruz ($\times 2$; CAS). FIGURE 50. *T. cavagnaroi* Hayes, new species, paratype, female, Santa Cruz ($\times 2$; CAS). FIGURE 51. *Callopistria floridensis* (Guenée), male, Isabela ($\times 2$). FIGURE 52. *Catabena seorsa* Todd, female, Santa Cruz ($\times 3$). FIGURE 53. *Magusa erema* Hayes, new species, holotype, male, Santa Cruz ($\times 2$). FIGURE 54. *M. erema* Hayes, new species, paratype, female, Santa Cruz ($\times 2$).

DISTRIBUTION. Endemic subspecies. The widespread neotropical species has been introduced to Australia, Hawaii, and Norfolk Island in an endeavour to control *Lantana*.

HOLOTYPE. Male. 17 mm. Isabela (Albemarle), Tagus Cove, 150 ft., 3 August 1924, St. George Expedition, C. L. Collenette, BM. 1925-488, BMNH.

PARATYPES. Same data as holotype, 4 August 1924, 1 female, BMNH; same data as holotype, 7 August 1924, 1 female, BMNH: Isabela, Punta Albemarle, March 1970, R. Silberglied, BM. 1970-567, 1 female, BMNH; Isabela, Punta Albemarle, March 1970, R. Silberglied, 4 males, 1 female, MCZ.

BIOLOGY. Not reared on the Galápagos Islands. Tietz lists *Lantana* and *Verbena* as foodplants for the nominate subspecies.

Spodoptera eridania (Stoll).

(Figures 57 & 58.)

Phalaena (Noctua) eridania STOLL, 1781, in Cramer, *Uitlandsche Kapellen*, vol. 4, p. 133, pl. 358, figs. E & F. Type material: Surinam; not traced.

A variable insect that is a common pest on the mainland.

DISTRIBUTION. Widespread neotropical species. *Galápagos Islands*: Isabela, March; San Cristóbal, April; Santa Cruz, February-July. AMNH, BMNH, CAS, MCZ.

BIOLOGY. *Foodplants*. *Amaranthus viridis*, *Portulaca oleracea*, *Cryptocarpus pyriformis*, *Cissampelos pareira*, *Ipomoea pes-caprae*. *Larva*. Head reddish brown. Body gray, streaked green and reddish brown with black markings; lateral line black. Tietz lists a very wide range of foodplants. This species is known as the Southern Armyworm in the U.S.A.

Spodoptera latifascia (Walker).

(Figures 59 & 60.)

Prodenia latifascia WALKER, 1856, List of the Specimens of Lepidopterous Insects in the Collection of the British Museum, vol. 9, p. 195. Holotype, male (examined): Jamaica; UM.

Sexually dimorphic.

DISTRIBUTION. Widespread neotropical species. *Galápagos Islands*: Flore-

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FIGURE 55. *Neogalea esula longfieldae* Hayes, new subspecies, holotype, male, Isabela ($\times 2$ reversed). FIGURE 56. *N. esula longfieldae* Hayes, new subspecies, paratype, female, Isabela ($\times 2$). FIGURE 57. *Spodoptera eridania* (Stoll), male, Santa Cruz ($\times 2$). FIGURE 58. *S. eridania* (Stoll), female, Santa Cruz ($\times 2$). FIGURE 59. *Spodoptera latifascia* (Walker), male, Santa Cruz ($\times 2$). FIGURE 60. *S. latifascia* (Walker), female, Santa Cruz ($\times 2$). FIGURE 61. *Spodoptera frugiperda* (Smith), male, Santa Cruz ($\times 2$; CAS). FIGURE 62. *S. frugiperda* (Smith), female, Santa Cruz ($\times 2$; AMNH).



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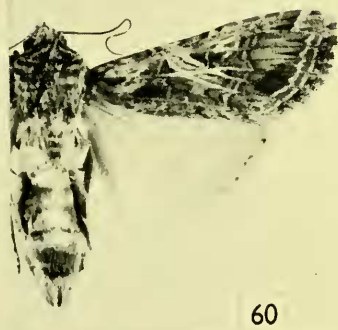
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ana, May; Isabela, April; San Cristóbal, February; Santa Cruz, March, April, October, December. BMNH, CAS, IRSNB.

BIOLOGY. Not reared on the Galápagos Islands. A pest of citrus on the mainland. Kimball and Tietz give foodplants.

Spodoptera dolichos (Fabricius).

(Figures 65 & 66.)

Noctua dolichos FABRICIUS, 1794, Entomologia Systematica, vol. 3, no. 2, p. 95. Type material: Americae meridionalis; not found by Zimsen, 1964, p. 570.

In common with some other members of the genus, this species is of economic importance on the mainland.

DISTRIBUTION. Widespread neotropical species. *Galápagos Islands*: Floreana, May; Santa Cruz, January–June, October, December. AMNH, BMNH, CAS, IRSNB.

BIOLOGY. Larvae reared on *Cryptocarpus pyriformis* have been referred to this species. Polyphagous.

Spodoptera frugiperda (Smith).

(Figures 61 & 62.)

Phalaena frugiperda J. E. SMITH, 1797, in Abbot & Smith, The Natural History of the Rarer Lepidopterous Insects of Georgia, vol. 2, p. 191, pl. 96. Type material: U.S.A., Georgia; not traced.

Another sexually dimorphic species of *Spodoptera*.

DISTRIBUTION. Widespread neotropical species. *Galápagos Islands*: Floreana, April; San Cristóbal, April; Santa Cruz, April, June; Santiago, March. AMNH, CAS, MCZ.

BIOLOGY. Not reared on the Galápagos Islands. A very general feeder.

Spodoptera roseae (Schaus).

(Figures 63 & 64.)

Trachea roseae SCHAUS, 1923, Zoologica, vol. 5, p. 33, pl. 1, fig. 4. (but proposed as '*Trachaea*' an incorrect spelling). Holotype, male (examined): Galápagos: Indefatigable [Santa Cruz]; USNM.

Laphygma roseae (Schaus): RICHARDS, 1941, Allan Hancock Pacific Expedition, vol. 5, p. 239. *Spodoptera roseae* (Schaus): LINSLEY & USINGER, 1966, Proc. Calif. Acad. Sci., vol. 33, no. 7, p. 160.

Richards (1941) dealt with this species in detail.

DISTRIBUTION. Endemic species. *Galápagos Islands*: Floreana, April; Isabela, January, March; Pinta, October; San Cristóbal, April; Santa Cruz, January–July, October, December; Santiago, March. AMNH, BMNH, CAS, IRSNB, MCZ, USNM, ZSBS.

BIOLOGY. No data available.

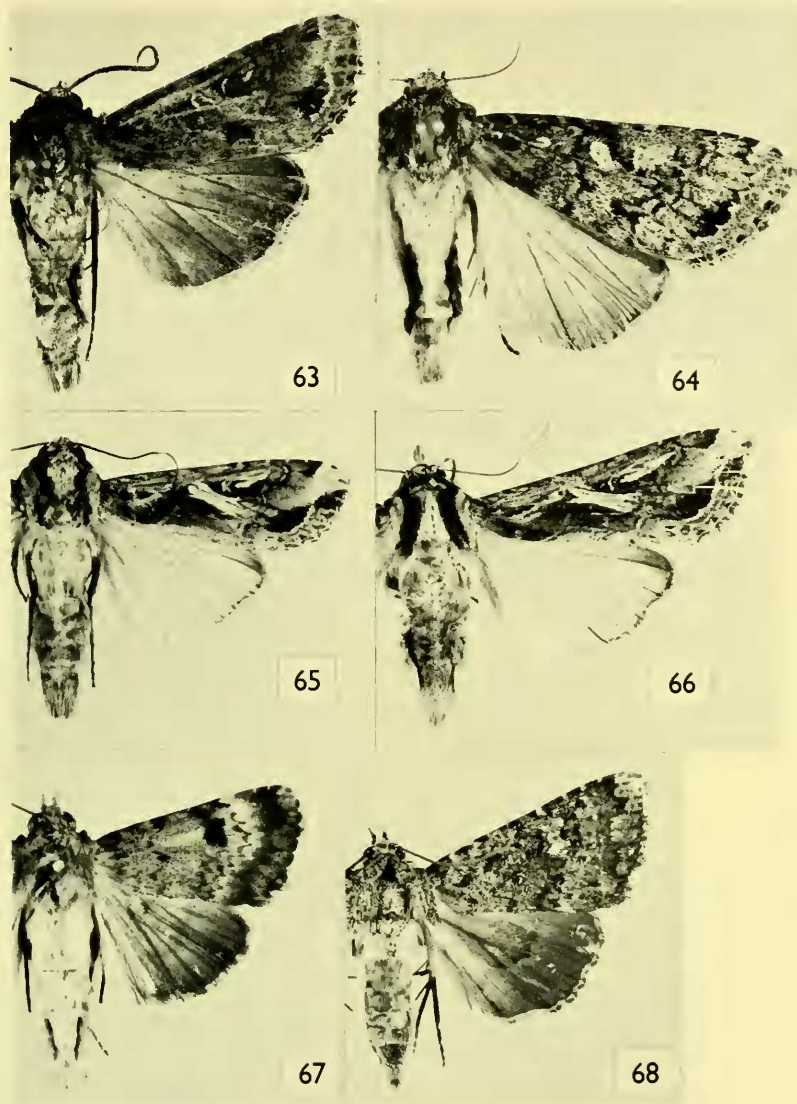


FIGURE 63. *Spodoptera roseae* (Schaus), male, Santa Cruz ($\times 2$). FIGURE 64. *S. roseae* (Schaus), female, Santa Cruz ($\times 2$). FIGURE 65. *Spodoptera dolichos* (Fabricius), male, Santa Cruz ($\times 2$). FIGURE 66. *S. dolichos* (Fabricius), female, Santa Cruz ($\times 2$). FIGURE 67. *Agrotisia williamsi* (Schaus), male, Santa Cruz ($\times 2$). FIGURE 68. *Platysenta ruthae* (Schaus), male, Santa Cruz ($\times 2$).

***Elaphria encantada* Hayes, new species.**

(Figures 72, 73, 161, & 162.)

Elaphria dubiosa (Schaus) sensu HAYES, 1972, Pan-Pacific Entomologist, vol. 48, p. 104. Misidentification.

DESCRIPTION. Male 11 mm. Antenna simple. Palpus clothed with a mixture of dark brown and buff scales. Forewing with prominent orbicular and reniform spots. Claviform spot elongate. Variable in forewing color and patterning. Hindwing brown and buff. Genitalia as figured. Larger than average Pinta specimens cannot be separated structurally.

Female 10.5 mm. Similar to male. Variable.

Nearest relative is *Elaphria chalcedonia* Hübner. *Elaphria encantada* lacks the prominent apical spot of related species and can also be separated on genitalic structure.

DISTRIBUTION. Endemic species.

HOLOTYPE. Male. Santa Cruz, December, 1968. R. Perry and Tj. de Vries. BMNH.

PARATYPES. Española, February; Fernandina, February; Floreana, May; Isabela, January, March, August, September; Pinta, April, May, September, October; Pinzón, February, April, December; Santa Cruz, January–August, October–December; Santiago, March, April, July, August, November. AMNH (13 specimens), BMNH (331 specimens), CAS (853 specimens), IRSNB (46 specimens), MCZ (87 specimens), RSM (5 specimens), USC (1 specimen), ZSBS (1 specimen).

BIOLOGY. No data available.

***Platysenta mobilis* (Walker), revived species.**

(Figure 71.)

Perigea mobilis WALKER, [1857] 1856, List of the Specimens of Lepidopterous Insects in the Collection of the British Museum, vol. 10, p. 277. Holotype, male (examined): St. Domingo; BMNH.

Confusion has arisen in the literature and collections over this insect which has in the past been incorrectly determined as *Perigea apameoides* Guenée. Some specimens lack the white reniform spot.

DISTRIBUTION. Widespread in the neotropical region. *Galápagos Islands*: Isabela, April; Santa Cruz, April–June; Santiago, April. AMNH, BMNH, CAS.

BIOLOGY. No data available.

***Platysenta sutor* (Guenée).**

(Figures 69 & 70.)

Perigea sutor GUENÉE, 1852, in Boisduval & Guenée, Histoire naturelle des Insectes. Lépidoptères, vol. 5, p. 231. Holotype, male (examined): Brazil; BMNH.

Perigea apameoides GUENÉE, 1852, in Boisduval & Guenée, *Historie naturelle des Insectes. Lépidoptères*, vol. 5, p. 229. (Lectotype designated by Viette, 1951, *Bulletin Mensuel de la Société Linnéenne de Lyon*, vol. 20, p. 160.) MNHN. New synonym. Lectotype figured here—figure 70.

Perigea ebba SCHAUS, 1923, *Zoologica*, vol. 5, p. 36. New synonym.

Size and coloration of this species varies. The Guenée name *P. apameoides* has been incorrectly used in the literature and collections for *P. mobilis*. To avoid confusion, and acting as first reviser under the International Code of Zoological Nomenclature, Article 24, I am regarding 'apameoides' as a synonym of *P. sutor* although *P. apameoides* has page priority. Subsequent to Viette's lectotype designation of *P. apameoides*, a paralectotype female from Coll. Guérin has been traced in the BMNH. It is conspecific with the lectotype and also bears the data "I. St. Thomas."

DISTRIBUTION. Widespread in the neotropical region. *Galápagos Islands*: Baltra, April; Isabela, January, March; Pinzón, April; San Cristóbal, April; Santa Cruz, January–June, October, December; Santiago, March, April, November. AMNH, BMNH, CAS, IRSNB, MCZ, USNM.

BIOLOGY. No data available. Kimball lists *Wedelia* and *Tagetes* (Compositae) as foodplants in Florida.

***Platysenta ruthae* (Schaus).**

(Figure 68.)

Perigea ruthae SCHAUS, 1923, *Zoologica*, vol. 5, p. 35. Lectotype, male (examined): Galápagos: Albemarle [Isabela]; USNM.

Platysenta ruthae (Schaus): RICHARDS, 1941, *Allan Hancock Pacific Expedition*, vol. 5, p. 237.

Richards (1941) dealt with this species in detail. Widespread in the Islands.

DISTRIBUTION. Endemic species. *Galápagos Islands*: Baltra, April; Floreana, April, July; Isabela, March, April, August; Pinta, October; Pinzón, April; Santa Cruz, January–June, August, October–December; Santiago, March, April, July. AMNH, BMNH, CAS, IRSNB, MCZ, USNM, ZSBS.

BIOLOGY. No data available.

***Agrotisia williamsi* (Schaus), new combination.**

(Figure 67.)

Harrisonia williamsi SCHAUS, 1923, *Zoologica*, vol. 5, p. 36. Lectotype, male (examined): Galápagos: South Seymour [Baltra]; USNM.

Richards (1941) figured the genitalia of this species. I am indebted to Prof. J. G. Franclemont for pointing out that this species is congeneric with *A. subhyalina* Hampson, the type species of *Agrotisia* Hampson 1908. Widespread, seasonally abundant species.

DISTRIBUTION. Endemic species. *Galápagos Islands*: Baltra, April; Es-

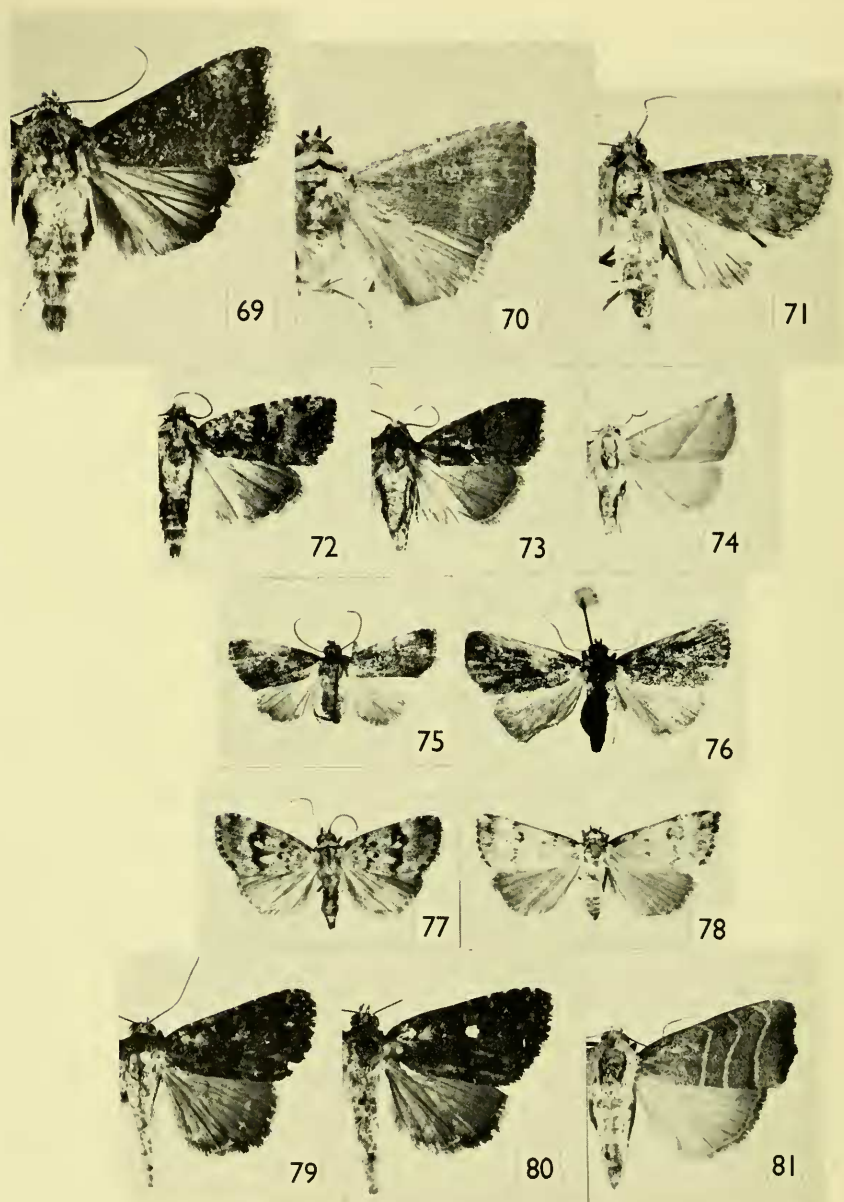


FIGURE 69. *Platysenta sutor* (Guenée), male, Santa Cruz ($\times 2$). FIGURE 70. *Perigea apameoides* (Guenée), lectotype, male, I. St. Thomas, Virgin Islands, synonym of *P. sutor* Guenée ($\times 2$; MNHN). FIGURE 71. *Platysenta mobilis* Walker, male, Santa Cruz ($\times 2$). FIGURE 72. *Elaphria encantada* Hayes, new species, holotype, male, Santa Cruz ($\times 2$). FIGURE 73. *E. encantada* Hayes, new species, paratype, female, Santa Cruz ($\times 2$).

pañola, February; Floreana, April; Gardner near Española, April; Isabela, March; Pinta, May; Santa Cruz, January–June, August–December; Santiago, July. AMNH, BMNH, CAS, IRSNB, MCZ, RSM, USNM, ZSBS.

BIOLOGY. No data available.

ACONTIINAE

***Ozarba consternans* Hayes, new species.**

(Figures 75–78, & 158.)

DESCRIPTION. Male 8.5 mm. Antenna simple. Forewing blackish brown. Hindwing lighter shade of brown. Genitalia as figured. Unlike any known species.

Female 10 mm. Broader winged but similar to male.

Great variation in forewing maculation exists within this species (see figures). Provisionally placed in the genus *Ozarba*.

DISTRIBUTION. Endemic species.

HOLOTYPE. Male. Santa Cruz, May 1970, R. Perry and Tj. de Vries.

PARATYPES. Española, April; Floreana, April; Pinta, October; Santa Cruz, February, March, May, June; Santiago, March. BMNH (5 specimens), CAS (17 specimens), MCZ (17 specimens), ZSBS (5 specimens).

BIOLOGY. No data available.

***Bagisara repanda* (Fabricius), new combination.**

(Figure 81.)

Bombyx repanda FABRICIUS, 1793, Entomologia Systematica, vol. 3, no. 1, p. 462. Lectotype (photograph examined): Americae meridionalis Insulis; UZM.

McDunnough (1938) and Kimball (1965) listed this species as *Atethmia subusta* Hübner. Draudt in Seitz used the combination *Bagisara subusta*.

DISTRIBUTION. Widespread in the neotropical region. *Galápagos Islands*: Isabela (humid zone) Volcán Chico, June 1970, J. Gordillo; BMNH.

BIOLOGY. No data available. A specimen from Barbados in the BMNH was reared on *Sida glomerata*.

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FIGURE 74. *Eublemma recta* (Guenée), male, Santa Cruz ($\times 2$). FIGURE 75. *Ozarba consternans* Hayes, new species, holotype, male, Santa Cruz ($\times 2$). FIGURE 76. *O. consternans* Hayes, new species, paratype, female, Santa Cruz ($\times 2$). FIGURE 77. *O. consternans* Hayes, new species, paratype, male, Santa Cruz ($\times 2$; CAS). FIGURE 78. *O. consternans* Hayes, new species, paratype, female, Santa Cruz ($\times 2$; CAS). FIGURE 79. *Amyna insularum* Schaus, male, Santa Cruz ($\times 2$). FIGURE 80. *A. insularum* Schaus, male, Santa Cruz ($\times 2$). FIGURE 81. *Bagisara repanda* (Fabricius), female, Isabela ($\times 2$).

Eublemma recta (Guenée), new combination.

(Figure 74.)

Micra recta GUENÉE, 1852, in Boisduval & Guenée, Histoire naturelle des Insectes. Lépidoptères, vol. 6, p. 245. Holotype, male (examined): neotropical but stated to be "Sierra Leone?" by Guenée; USNM.

Somewhat variable in basic coloration.

DISTRIBUTION. Widespread in the neotropical region. *Galápagos Islands*: Genovesa, April; Santa Cruz, September. AMNH, BMNH.

BIOLOGY. *Foodplant*. *Ipomoea triloba*. *Larva*. Reddish brown. Pupation within silken cocoon. Forbes (1954) states the larvae feed on the buds and seeds of *Convolvulus* and sweet potato in the U.S.A. (Species listed as *Eublemma obliqualis* Fabricius).

Amyna insularum Schaus.

(Figures 79 & 80.)

Amyna insularum SCHAUS, 1923, Zoologica, vol. 5, p. 37. Lectotype, male (examined): Galápagos: Indefatigable [Santa Cruz]; USNM.

Two forms of this insect are recognized. One possesses a prominent white reniform spot. Both forms are figured. Well represented in collections.

DISTRIBUTION. Endemic species. *Galápagos Islands*: Baltra, April; Española, April; Fernandina, February; Floreana, January, April, July; Gardner near Española, April; Genovesa, no month; Isabela, January, March–June, August; Pinzón, April, June; Rábida, June; San Cristóbal, February–April; Santa Cruz, January–December; Santa Fé, April; Santiago, January, February–April. AMNH, BMNH, CAS, LACM, IRSNB, MCZ, RSM, ZSBS, USC.

BIOLOGY. Widespread, coastal regions; abundant; individuals at beginning of season may be smaller. At rest the wings are held flat and extended backwards, so that the insect assumes a characteristically triangular outline. *Foodplants*. *Alternanthera echinocephala*, *A. filifolia*. *Larva*. Pale green with darker lines.

Heliocontia margana (Fabricius).

(Figures 82 & 83.)

Pyralis margana FABRICIUS, 1794, Entomologia Systematica, vol. 3, no. 2, p. 257. Type material: Americae Insulis; UZM.

Sexually dimorphic.

DISTRIBUTION. Widely distributed in the neotropical region. *Galápagos Islands*: Baltra, April; Española, April; Floreana, April; Gardner near Española, April; Genovesa, February; Isabela, March; San Cristóbal, February, April; Santa Cruz, February, April, May, August; Santiago, February, March. AMNH, BMNH, CAS, MCZ, ZSBS, USC.

BIOLOGY. *Foodplants*. *Sida* species, *Abutilon depauperatum*. *Larva*. Variable, green with lighter and darker lines.

Spragueia creton Schaus.

(Figures 84–86.)

Spragueia creton SCHAUS, 1923, *Zoologica*, vol. 5, p. 38. Lectotype, male (examined): Galápagos: Genovesa (Tower); USNM.

Spragueia plumbeata SCHAUS, 1923, *Zoologica*, vol. 5, p. 38.

Spragueia creton Schaus: TODD, 1972, *Jour. Washington Acad. Sci.*, vol. 62, no. 1, p. 36.

Todd has given full coverage of this sexually dimorphic species, placing *S. plumbeata* in synonymy.

DISTRIBUTION. Endemic species. *Galápagos Islands*: Baltra, April; Española, February, April; Floreana, April; Gardner near Española, April; Genovesa, February, April; Isabela, March; San Cristóbal, April; Santa Cruz, March, May; Santiago, February, March. AMNH, BMNH, CAS, MCZ, USNM, ZSBS.

BIOLOGY. No data available.

Ponometia indubitans (Walker).

(Figures 92–94.)

Nonagria indubitans WALKER, 1857, *List of the Specimens of Lepidopterous Insects in the Collection of the British Museum*, vol. 11, p. 712. Holotype, male (examined): [Brazil]: Para; BMNH.

Another sexually dimorphic, variable species. Further material of this species is needed.

DISTRIBUTION. Widespread in the neotropical region. *Galápagos Islands*: Gardner near Hood, April; Genovesa, February; Isabela, March; San Cristóbal, February; Santa Cruz, May. BMNH, CAS, MCZ, USNM.

BIOLOGY. *Foodplant*. *Waltheria ovata*. *Larva*. Head greenish brown with black etchings. Body grayish green with black lines and markings. *Pupa*. Thin-walled, yellowish brown.

EUTELIINAE

Paectes arcigera (Guenée).

(Figures 89–91.)

Ingura arcigera GUENÉE, 1852, in Boisduval & Guenée, *Histoire Naturelle des Insectes. Lépidoptères*, vol. 6, p. 312. Holotype, female: [Virgin Islands]: Ile Saint-Thomas; not traced.

Paectes indefatigabilis SCHAUS, 1923, *Zoologica*, vol. 5, p. 38. New synonym.

Paectes isabel SCHAUS, 1923, *Zoologica*, vol. 5, p. 39. New synonym.

Sexually dimorphic, specimens exhibit considerable variation. The new synonymy has been established by genitalia preparations. Well represented in collections.

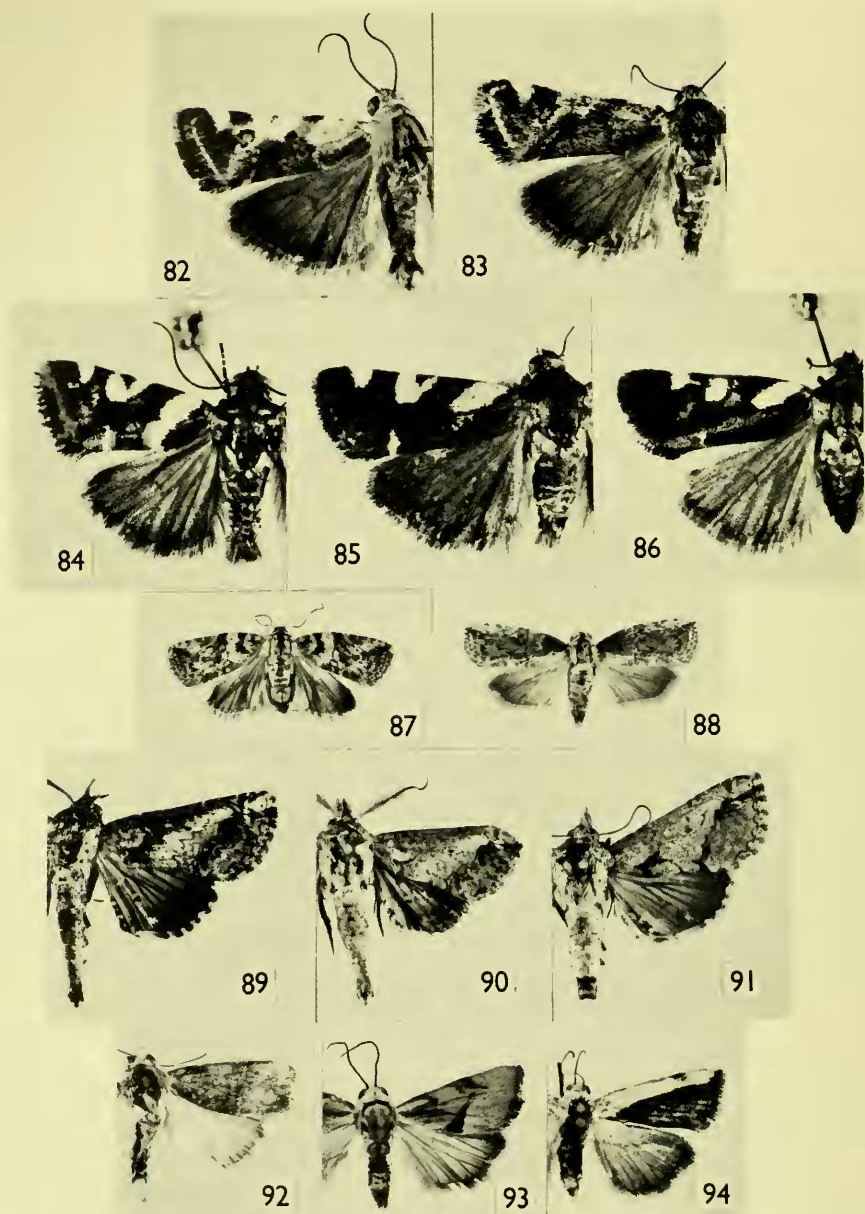


FIGURE 82. *Heliocontia margana* (Fabricius), male, Santa Cruz ($\times 4$). FIGURE 83. *H. margana* (Fabricius), female, Santa Cruz ($\times 4$). FIGURE 84. *Spragueia creton* Schaus, male, Santa Cruz ($\times 4$). FIGURE 85. *S. creton* Schaus, female, Santa Cruz ($\times 4$). FIGURE 86. *S. creton* Schaus, female, Santa Cruz ($\times 4$). FIGURE 87. *Characoma nilotica* (Rogenhofer), female, Santa Cruz ($\times 2$). FIGURE 88. *C. nilotica* (Rogenhofer), female, Santa Cruz

DISTRIBUTION. Widespread neotropical species. *Galápagos Islands*: Baltra, April; Floreana, April, October; Gardner near Española, April; Genovesa, no month; Isabela, March–May, August; Pinta, May; Pinzón, April; San Cristóbal, April; Santa Fé, April; Santa Cruz, January–August, October, December; Santiago, March. AMNH, BMNH, CAS, IRSNB, MCZ, USNM.

BIOLOGY. On wing throughout the period December 1968 to May 1969, with a peak of abundance from mid March to early April; coastal areas, late afternoons, to be seen among foliage of *Cryptocarpus pyriformis*. *Foodplant*. *Bursera graveolens*. *Larva*. Green with pale lines; pale yellow on 1st segment and with 4 pigment spots at bases of setae.

SARROTHRIPINAE

Characoma nilotica (Rogenhofer).

(Figures 87 & 88.)

Sarrothripa nilotica ROGENHOFER, 1882, Verhandlungen der Zoologisch-botanischen Gesellschaft in Wien, vol. 31, p. 26. Holotype (examined): Egypt; NM.

Variable species.

DISTRIBUTION. Pantropical species. *Galápagos Islands*: Fernandina, January; San Cristóbal, April; Santa Cruz, January, February, June, September–November; Santiago, July. AMNH, BMNH, CAS, IRSNB.

BIOLOGY. Larval foodplant *Laguncularia racemosa*.

CATOCALINAE

Mocis incurvalis Schaus.

(Figures 95–97.)

Mocis incurvalis SCHAUS, 1923, Zoologica, vol. 5, p. 41. Lectotype, male (examined): Galápagos: Indefatigable [Santa Cruz]; USNM.

Sexually dimorphic. Some variation in female specimens.

DISTRIBUTION. Endemic species. *Galápagos Islands*: Baltra, April; Fernandina, April; Isabela, March, April, August; Pinta, May, October; San Cristóbal, April; Santa Cruz, March–July, September, October. AMNH, BMNH, CAS, IRSNB, MCZ, RSM, USNM, ZSBS.

BIOLOGY. No data available. Gramineae are listed as important among foodplants of related species.

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(× 2; IRSNB). FIGURE 89. *Paectes arcigera* (Guenée), male, Santa Cruz (× 2). FIGURE 90. *P. arcigera* (Guenée), male, Santa Cruz (× 2). FIGURE 91. *P. arcigera* (Guenée), female, Santa Cruz (× 2). FIGURE 92. *Ponometia indubitans* (Walker), male, Isabela (× 2; CAS). FIGURE 93. *P. indubitans* (Walker), male, Floreana (× 2). FIGURE 94. *P. indubitans* (Walker), female, Santiago (× 2).

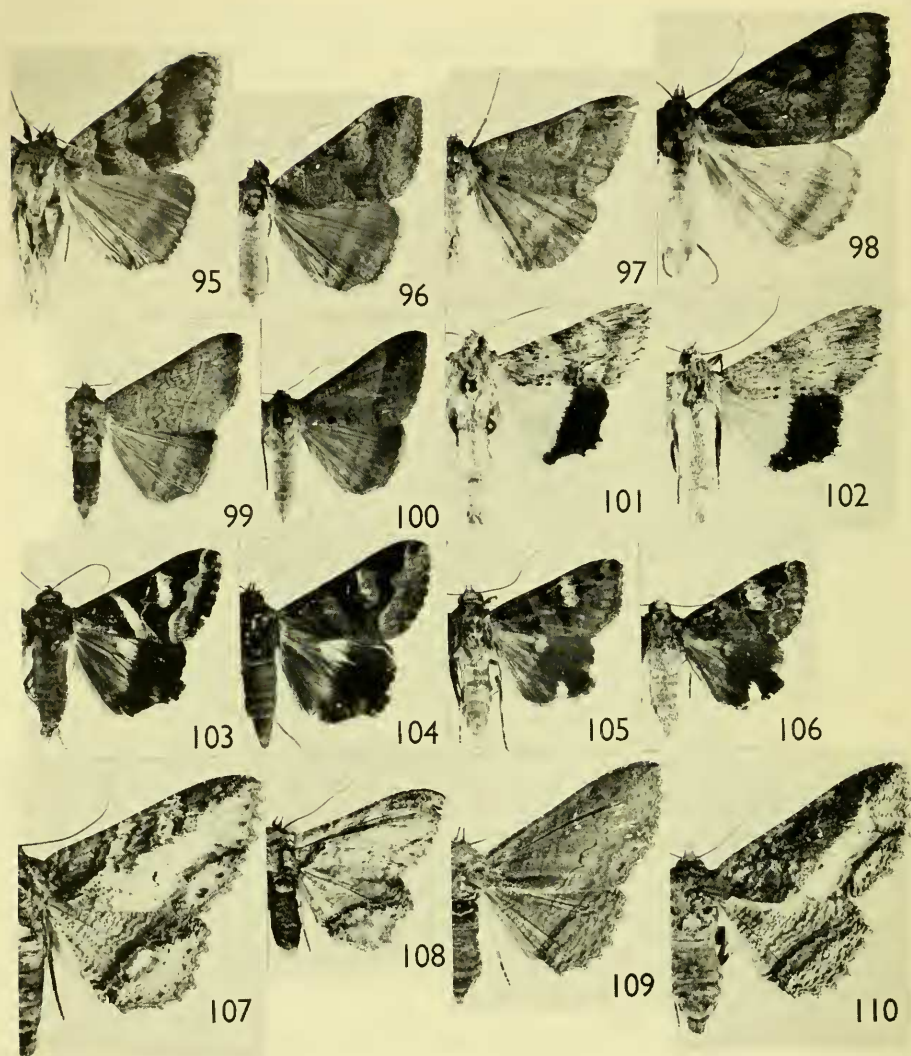


FIGURE 95. *Mocis incurvalis* Schaus, male, Santa Cruz ($\times 1$). FIGURE 96. *M. incurvalis* Schaus, female, Santa Cruz ($\times 1$). FIGURE 97. *M. incurvalis* Schaus, female, Santa Cruz ($\times 1$). FIGURE 98. *Celiptera remigioides* (Guenée), female, Santa Cruz ($\times 1$). FIGURE 99. *Mocis latipes* (Guenée), female, Santa Cruz ($\times 1$). FIGURE 100. *M. latipes* (Guenée), female, Santa Cruz ($\times 1$). FIGURE 101. *Melipotis acontioides producta* Hayes, new subspecies, holotype, male, Santa Cruz ($\times 1$). FIGURE 102. *M. acontioides producta* Hayes, new subspecies, paratype, female, Santa Cruz ($\times 1$). FIGURE 103. *M. indomita* (Walker), male, Santa Cruz ($\times 1$). FIGURE 104. *M. indomita* (Walker), female, Santa Cruz ($\times 1$). FIGURE 105. *M. harrisoni* Schaus, male, Santa Cruz ($\times 1$). FIGURE 106. *M. harrisoni* Schaus, female, Santa Cruz ($\times 1$). FIGURE 107. *Zale obsita* (Guenée), male, Santa Cruz ($\times 1$). FIGURE 108. *Z. obsita* (Guenée), male, Santa Cruz ($\times 1$; CAS). FIGURE 109. *Z. obsita* (Guenée), female, Santa Cruz ($\times 1$). FIGURE 110. *Z. obsita* (Guenée), female, Santiago ($\times 1$).

Mocis latipes (Guenée).

(Figures 99 & 100.)

Remigia latipes GUENÉE, in Boisduval & Guenée, 1852, Histoire Naturelle des Insectes. Lépidoptères, vol. 7, p. 314. Lectotype, male (examined): Guadeloupe; BMNH.

Variable species.

DISTRIBUTION. Widespread in the neotropical region. *Galápagos Islands*: Baltra, April; Floreana, May; San Cristóbal, April; Santa Cruz, April–June. AMNH, BMNH, CAS, MCZ, USC.

BIOLOGY. Larvae not yet found on the Galápagos Islands. In the U.S.A. this species feeds on grasses and other crops.

Celiptera remigioides (Guenée).

(Figure 98.)

Ophiodes remigioides GUENÉE, 1852, in Boisduval & Guenée, Histoire Naturelle des Insectes. Lépidoptères, vol. 7, p. 230, pl. 21, fig. 5. Syntype male (examined): neotropical but stated to be Central India; BMNH.

The hindwing of this species varies from yellow to fuscous.

DISTRIBUTION. Widespread in the neotropical region. *Galápagos Islands*: Genovesa, March; Santa Cruz, February–April, July, October, December. AMNH, BMNH, CAS.

BIOLOGY. No data available.

Zale obsita (Guenée), revived species.

(Figures 107–110.)

Homoptera obsita GUENÉE, 1852, in Boisduval & Guenée, Histoire Naturelle des Insectes. Lépidoptères, vol. 7, p. 12. Holotype, female (examined): Brazil; BMNH.

Zale species, *viridans* group RICHARDS, 1941, Allan Hancock Pacific Expedition, vol. 5, p. 243.

Richards figured the male genitalia of this variable species which was previously synonymized with *Z. viridans*. I am indebted to Dr. E. L. Todd for help with this identification.

DISTRIBUTION. A neotropical species. *Galápagos Islands*: Santa Cruz, February–April, June, October, November; Santiago, November. AMNH, BMNH, CAS, IRSNB, MCZ.

BIOLOGY. No data available.

PLUSIINAE

Autoplusia egena galapagensis (Schaus).

(Figure 111.)

Syngrapha egena galapagensis SCHAUS, 1923, Zoologica, vol. 5, p. 41. Holotype, female (examined): Galápagos: James [Santiago]; USNM.

This is the dullest colored of the three species of this subfamily known from the Galápagos Islands.

DISTRIBUTION. Endemic subspecies of the neotropical species. *Galápagos Islands*: Baltra, April; Isabela, May, September; Pinzón, June; San Cristóbal, April, June; Santa Cruz, February, May, June; Santiago, April. AMNH, BMNH, CAS, USNM.

BIOLOGY. No data available. In the U.S.A. the nominate subspecies feeds on *Phaseolus* (Leguminosae).

Argyrogramma verruca (Fabricius).

(Figure 112.)

Noctua verruca FABRICIUS, 1794, Entomologia Systematica, vol. 3, pt 2, p. 81. Type material: Americae meridionalis Insulis; UZM.

This is the smallest species of this subfamily found on the Galápagos Islands.

DISTRIBUTION. Widespread in the neotropics, extending to Canada. *Galápagos Islands*: Floreana, January; Isabela, January; Santa Cruz, February, April. AMNH, BMNH, CAS.

BIOLOGY. No data available. Foodplants in the U.S.A. include *Sagittaria* and *Calendula*.

Pseudoplusia includens (Walker).

(Figure 113.)

Plusia includens WALKER, [1858] 1857, List of the Specimens of Lepidopterous Insects in the Collection of the British Museum, vol. 12, p. 914. Type female (examined): St. Domingo; BMNH.

Previously treated as *Phalaena oo* (Stoll) by some workers, but this is a junior primary homonym.

DISTRIBUTION. Widespread in the neotropical region. *Galápagos Islands*:

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FIGURE 111. *Autoplusia egena galapagensis* (Schaus), male, Santa Cruz ($\times 1$). FIGURE 112. *Argyrogramma verruca* (Fabricius), male, Isabela ($\times 1$). FIGURE 113. *Pseudoplusia includens* (Walker), female, Santa Cruz ($\times 1$). FIGURE 114. *Ascalapha odorata* (Linnaeus), male, Santa Cruz ($\times \frac{3}{4}$; CAS). FIGURE 115. *A. odorata* (Linnaeus), female, Santa Cruz ($\times \frac{3}{4}$). FIGURE 116. *Letis mycerina* (Cramer), male, Panama ($\times \frac{3}{4}$). FIGURE 117. *L. mycerina* (Cramer), female, Santa Cruz ($\times \frac{3}{4}$). FIGURE 118. *Epidromia zetophora* Guenée, male, Isabela ($\times 1$). FIGURE 119. *Psorya hadesia* Schaus, male, Santa Cruz ($\times 1$). FIGURE 120. *P. hadesia* Schaus, female, Santa Cruz ($\times 1$). FIGURE 121. *P. hadesia* Schaus, female, Punta Suarez, Española ($\times 1$). FIGURE 122. *Epidromia zephyritis* Schaus, male, Santa Cruz ($\times 1$). FIGURE 123. *E. zephyritis* Schaus, female, Santa Cruz ($\times 1$). FIGURE 124. *Anticarsia prona* (Möschler), male, Isabela ($\times 1$). FIGURE 125. *A. prona* (Möschler), female, Isabela ($\times 1$). FIGURE 126. *A. gemmatalis* Hübner, male, Santa Cruz ($\times 1$). FIGURE 127. *A. gemmatalis* Hübner, male, Santa Cruz ($\times 1$). FIGURE 128. *A. gemmatalis* Hübner, female, Santa Cruz ($\times 1$).



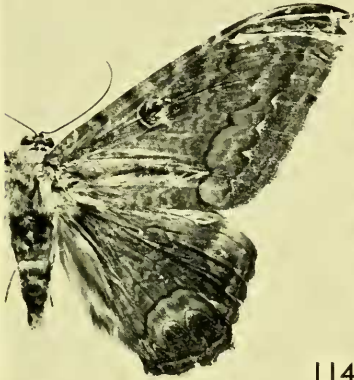
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Baltra, April, June; Isabela, March, May; Floreana, no month; San Cristóbal, February, April; Santa Cruz, February–April; Santiago, April. AMNH, BMNH, CAS, MCZ, USNM, USC.

BIOLOGY. Abundant some years, particularly from February to May. Diurnal, coming especially to flowers of *Clerodendrum molle* and *Cordia* species. **Foodplants.** *Cordia leucophlyctis*, *Tournefortia psilostachya*, *Heliotropium angiospermum*, *Lantana peduncularis*, *Mentzelia aspera*. **Larva.** Smooth; pale green with thin white lines. **Pupa.** Greenish, thin-walled in flimsy cocoon in coiled underside of leaf of host plant.

OPHIDERINAE

Melipotis acontioides producta Hayes, new subspecies.

(Figures 101 & 102.)

Galápagos specimens can be separated by the extended marginal band on the posterior margin of the hindwing.

DISTRIBUTION. Endemic subspecies of the widespread neotropical species.

HOLOTYPE. Male. 26 mm., Santa Cruz, February 1970, R. Perry and Tj. de Vries, BM 1970–170.

PARATYPES. Española, April; Floreana, April; Isabela, March; Santa Cruz, January–March, August–November. AMNH (31 specimens), BMNH (27 specimens), CAS (63 specimens), IRSNB (7 specimens), MCZ (25 specimens), RSM (2 specimens).

BIOLOGY. **Foodplant.** *Parkinsonia aculeata*. **Larva.** A pattern of gray-black markings outlined with white; some reddish brown on side. The larvae have the habit of lying pressed to the central part of the leaf.

Melipotis indomita (Walker).

(Figures 103 & 104.)

Bolina indomita WALKER, [1858] 1857, List of the Specimens of Lepidopterous Insects in the Collection of the British Museum, vol. 13, p. 1161. Holotype, female (examined): Brazil; BMNH.

Sexually dimorphic. This insect has recently reached Hawaii.

DISTRIBUTION. Widespread in the neotropical region. *Galápagos Islands:* Baltra, April; Española, April; Floreana, January, February–July, October; Genovesa, April; Isabela, March, April, August; Pinta, October; Pinzón, April, June; San Cristóbal, February, April, July; Santa Cruz, January–June, August, October, December; Santa Fé, April, July; Santiago, March, July. AMNH, BMNH, CAS, IRSNB, MCZ, USNM, ZSBS, USC.

BIOLOGY. A common species, found in all months except at prolonged dry periods; adults come to flowers at dusk in the rainy season. **Foodplant.** *Prosopis jubiflora*. **Larva.** Head shiny brown. Body greenish white with red and gray-brown markings; more reddish laterally; underside pale, unmarked. Larvae are

found during the day in litter or under rocks at the base of the plants. *Pupa*. Pupation takes place in a loose cocoon of particles of soil and litter.

Melipotis harrisoni Schaus.

(Figures 105 & 106.)

Melipotis harrisoni SCHAU, 1923, Zoologica, vol. 5, p. 42. Lectotype, male (examined): Galápagos: South Seymour [Baltra]; USNM.

Sexually dimorphic. The prominent white spots on the hindwing separate this species from *M. indomita*.

DISTRIBUTION. Endemic species. *Galápagos Islands*: Baltra, January, February, April, November; Floreana, April; Isabela, January–April, August; Pinzón, April, December; Rábida, June; San Cristóbal, February; Santa Cruz, January–October, December; Santiago, January, July. AMNH, BMNH, CAS, IRSNB, LACM, MCZ, RSM, USNM, ZSBS, USC.

BIOLOGY. *Foodplants*. *Acacia macracantha*, *Acacia rorudiana*. *Larva*. Head gray bordered with black. Body pale greenish gray with darker markings; some purplish suffusion.

Ascalapha odorata (Linnaeus).

(Figures 114 & 115.)

Phalaena (Bombyx) odorata LINNAEUS, 1758, Systema Naturae (10th Ed.), vol. 1, p. 505. Type material (examined): America; LS.

Sexually dimorphic. Has been seen on some of the smaller and drier islands such as Genovesa and Pinzón. Generally seen at dusk. I believe this to be the species mentioned by Nelson (1968) as a saturniid. Galápagos specimens are usually smaller than those from the mainland.

DISTRIBUTION. Widespread in the neotropical region. *Galápagos Islands*: Floreana, April, May; San Cristóbal, April; Santa Cruz, March–June, October. AMNH, BMNH, CAS, MCZ, USC.

BIOLOGY. No data available. Tietz lists *Acacia* and *Cassia* among its foodplants in the U.S.A.

Letis mycerina (Cramer).

(Figures 116 & 117.)

Phalaena (Attacus) mycerina CRAMER, 1777, Uitlandsche Kapellen, vol. 2, p. 115, pl. 172, fig. B. Holotype, female: Surinam; not traced.

A fairly large, sexually dimorphic noctuid which may have been dismissed as *A. odorata* previously. I have illustrated a male from Panama since this species is only represented from the Islands in the BMNH by a female.

DISTRIBUTION. Neotropical species. *Galápagos Islands*: Santa Cruz, April, June. AMNH, BMNH.

BIOLOGY. No data available.

Rivula asteria (Druce), new combination.

(Figure 144.)

Thalpochares asteria DRUCE, 1898, Biologia Centrali-Americana, Heterocera, vol. 2, p. 497, pl. 95, fig. 25. Holotype, female (examined): Teapa, Mexico; BMNH.

Rivula ? *dubiosa* SCHAUS, 1923, Zoologica, vol. 5, p. 44. New synonym. Lectotype, female (examined): Galápagos, Indefatigable [Santa Cruz]; USNM.

I have illustrated a male of this species which is rare in collections. Galápagos material I have examined has been in poor condition. The genus *Rivula* is used provisionally until revisionary work is undertaken.

DISTRIBUTION. Mexico, Bolivia, Galápagos archipelago. *Galápagos Islands*: Santa Cruz, March, April, June. AMNH, BMNH, CAS.

BIOLOGY. No data available.

Glympis toddi Hayes, new species.

(Figures 140 & 141.)

DESCRIPTION. MALE 12 mm. Antenna simple. Palpus gray brown. Slight concavity in costal margin of forewing. Forewing narrow, fuscous, and darker brown. Antemedial band angled. Postmedial band well-defined. Undersurface orange, yellow, and fuscous. Postmedial line of hindwing prominent orange. Abdominal tufts reduced.

Female 14 mm. Broader winged but similar to male.

Both sexes highly variable in forewing maculation. Differs from the nearest species *Glympis incusalis* Grote by the differing forewing maculation and more fuscous hindwing.

DISTRIBUTION. Endemic species.

HOLOTYPE. Male. Floreana, Asilo de la Paz, 360 m., January 1971.

PARATYPES. Floreana, April; Isabela, March, September; Pinta, May, September; Santa Cruz, January–March, May–June, August–September. AMNH (4 specimens), BMNH (133 specimens), CAS (86 specimens), IRSNB (11 specimens), MCZ (7 specimens), RSM (5 specimens), ZSBS (8 specimens).

BIOLOGY. No data available.

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FIGURE 129. *Anomis editrix* (Guenée), male, Floreana (× 2). FIGURE 130. *A. illita* (Guenée), male, Santa Cruz (× 2). FIGURE 131. *A. luridula professorum* Schaus, male, Isabela (× 2). FIGURE 132. *A. erosa* Hübner, male, Floreana (× 2). FIGURE 133. *Bendis formularis* Geyer, male, Mexico (× 2). FIGURE 134. *B. formularis* Geyer, female, Santa Cruz (× 2). FIGURE 135. *Gonodonta fulvangula* Geyer, female, Santa Cruz (× 2; AMNH). FIGURE 136. *G. biarmata evadens* Walker, male, Santa Cruz (× 2). FIGURE 137. *G. biarmata evadens* Walker, female, Santa Cruz (× 2).



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Anomis editrix (Guenée).

(Figure 129.)

Gonitis editrix GUENÉE, 1852, in Boisduval & Guenée, Histoire Naturelle des Insectes. Lépidoptères, vol. 6, p. 404. Type material (examined): Haiti; BMNH.

One of four species in this genus found on the Galápagos Islands. Lacks yellow coloration but possesses an angled margin to the forewing. Variable species.

DISTRIBUTION. Widespread in the neotropical region. *Galápagos Islands*: Floreana, January; Santa Cruz, June. AMNH, BMNH.

BIOLOGY. No data available.

Anomis illita Guenée.

(Figure 130.)

Anomis illita GUENÉE, 1852, in Boisduval & Guenée, Histoire Naturelle des Insectes. Lépidoptères, vol. 6, p. 400. Lectotype, female: Brazil; MNHN.

Possesses the straightest forewing margin of the four species of *Anomis* found on the Galápagos Islands.

DISTRIBUTION. Widespread neotropical species. *Galápagos Islands*: Santa Cruz, March–July. AMNH, BMNH, CAS.

BIOLOGY. *Foodplant*. *Hibiscus tiliaceus*. *Larva*. Head green, spotted black. Body pale, purplish brown; anal plate green. The single larva found was feeding on the flower of the above hostplant.

Anomis luridula professorum Schaus, new status.

(Figure 131.)

Anomis professorum SCHAUS, 1923, Zoologica, vol. 5, p. 42. Lectotype, male (examined): Galápagos: Chatham [San Cristóbal]; USNM.

Variable species. I am reducing '*professorum*' to subspecific status. Genitalia match those of mainland specimens but Galápagos specimens are smaller and less strongly marked.

DISTRIBUTION. Endemic subspecies of the widespread neotropical species. *Galápagos Islands*: Baltra, April; Floreana, March, August; Genovesa, April; Isabela, February–April, August; Rábida, June; San Cristóbal, February, April; Santa Cruz, February, April–July; Santiago, April. AMNH, BMNH, CAS, LACM, USNM, ZSBS.

BIOLOGY. No data available.

Anomis erosa Hübner.

(Figure 132.)

Anomis erosa HÜBNER, 1823, Zuträge zur Sammlung Exotischer Schmetterlinge, vol. 2, p. 19, figs. 287–288. Type female: [U.S.A.] Savannah; not traced.

Forewing yellow and gray with angled margin.

DISTRIBUTION. Widespread neotropical species. *Galápagos Islands*: Floreana, January; Santa Cruz, March, June. AMNH, BMNH, CAS, MCZ, USC.

BIOLOGY. No data available. Foodplants in the U.S.A. are members of Malvaceae.

Plusiodonta clavifera (Walker).

(Figures 138 & 139.)

Tafalla clavifera WALKER, 1869, Characters of undescribed Lepidoptera Heterocera, p. 43.

Type material (examined): [Honduras] Limas; BMNH.

Sexually dimorphic.

DISTRIBUTION. Widespread neotropical species. *Galápagos Islands*: Santa Cruz, February–May, September–November. BMNH, CAS, ZSBS.

BIOLOGY. No data available.

Gonodonta biarmata evadens Walker, new status.

(Figures 136 & 137.)

Gonodonta evadens WALKER, [1858] 1857, List of the Specimens of Lepidopterous Insects in the Collection of the British Museum, vol. 12, p. 955. Lectotype, female (examined): [Galápagos] 'W. Coast of America'; BMNH.

Gonodonta biarmata galapagensis TODD, 1959, Tech. Bull. Agric. Res. Serv. U.S. Dept. Agric., no. 1201, p. 20, new synonym. Holotype, male (examined): Galápagos, Indefatigable [Santa Cruz]; AMNH.

Facts relating to the origin of the two female specimens studied by Walker, labelled "W. Coast of America," (already mentioned under *Psaphara interclusa*), strongly suggested they were taken on the Galápagos Islands. This is confirmed as they match Galápagos specimens.

DISTRIBUTION. Endemic subspecies of the widespread neotropical species. *Galápagos Islands*: Fernandina, February; Floreana, no month; Isabela, March; Pinta, October; San Cristóbal, January, April, June; Santa Cruz, January–July, November, December. AMNH, BMNH, CAS, MCZ, MRAC, USNM, USC.

BIOLOGY. The adults of some species of *Gonodonta* have caused injury to citrus crops by piercing the fruit. Todd (1959, p. 19) gives foodplants of nominate subspecies.

Gonodonta fulvangula Geyer.

(Figure 135.)

Gonodonta fulvangula GEYER, 1832, in Hübner, Beiträge zur Sammlung Exotischer Schmetterlinge, vol. 4, p. 32, figs. 737, 738. Type material: Monte Video; not traced.

Only one specimen has so far been taken.

DISTRIBUTION. Widespread neotropical species. *Galápagos Islands*: Santa Cruz, Horneman Farm, 200 m., 27 June 1965, Mrs. J. DeRoy, 1 female, AMNH.

BIOLOGY. No data available. Todd's revision of this genus quotes an 1882 reference to Araticú as the foodplant. This name refers to species of *Ammona* and possibly to *A. montana*.

Metallata absumens contiguata Hayes, new subspecies.

(Figures 145 & 146.)

I am separating the Galápagos population of this extremely variable insect as a distinct subspecies. In each specimen examined the reniform spot on the forewing is fused or in very close proximity to the postmedial fascia. This is in direct contrast to mainland specimens where the two markings are always separated by at least 1 mm.

DISTRIBUTION. Endemic subspecies of the species widespread in the neotropical region.

HOLOTYPE. Male. 14.5 mm. Floreana, Asilo de la Paz, 360 m., January 1971. BMNH.

PARATYPES. Floreana, April; Isabela, August; Marchena, November; San Cristóbal, April; Santa Cruz, February–July, September, October. AMNH (16 specimens), BMNH (15 specimens), CAS (31 specimens), IRSNB (1 specimen), MCZ (1 specimen), ZSBS (14 specimens).

BIOLOGY. No data available.

Bendis formularis Geyer.

(Figures 133 & 134.)

Bendis formularis GEYER, 1837, in Hübner, *Zuträge zur Sammlung Exotischer Schmetterlinge*, vol. 5, p. 26, figs. 903–904. Type female: Brazil; not traced.

I have seen only three specimens from the Galápagos Islands.

DISTRIBUTION. Widespread neotropical species. *Galápagos Islands*: Floreana, no month; Santa Cruz, June, September. AMNH, BMNH, USC.

BIOLOGY. No data available.

Anticarsia gemmatalis Hübner.

(Figures 126–128.)

Anticarsia gemmatalis HÜBNER, 1818, *Zuträge zur Sammlung Exotischer Schmetterlinge*, vol. 1, p. 26, figs. 153–154. Type material: Surinam; not traced.

An extremely variable, common species.

DISTRIBUTION. Widespread neotropical species. *Galápagos Islands*: Baltra, March, April; Fernandina, April; Floreana, February; Genovesa, March, April; Isabela, March–May; Pinta, October; San Cristóbal, February, April; Santa Cruz, January–July, October. AMNH, BMNH, CAS, IRSNB, MCZ, USNM, ZSBS.

BIOLOGY. Found in the arid and humid zones of the main islands; abundant

at times; diurnal to an extent. *Foodplants*. *Cryptocarpus pyriformis*, *Piscidia carthagenensis*, *Rhynchosia minima*. *Larva*. Green, paler lines edged with black. In the U.S.A. this species is known as the Velvetbean Caterpillar. It feeds on a wide range of plants.

***Anticarsia prona* (Möschler).**

(Figures 124 & 125.)

Thermesia prona MÖSCHLER, 1880, Verhandlungen der Zoologisch-botanischen Gesellschaft in Wien, vol. 30 (Abh.), p. 443. Type material: [Panama] Chiriqui; [Venezuela] Puerto Cabello; Surinam, Paramaribo; not traced.

Sexually dimorphic.

DISTRIBUTION. Widespread neotropical species. *Galápagos Islands*: Isabela, January, August; Santa Cruz, February–July. AMNH, BMNH, CAS, ZSBS.

BIOLOGY. No data available.

***Psorya hadesia* Schaus.**

(Figures 119–121.)

Psorya hadesia SCHAUS, 1923, Zoologica, vol. 5, p. 44. Lectotype, female (examined): Galápagos: South Seymour [Baltra]; USNM.

A single female in the BMNH from Punta Suarez, Española (fig. 121) differs in its lighter brown and white coloration. Introduced goats are destroying the recorded foodplant on Española and this interesting form may well be endangered.

DISTRIBUTION. Endemic species. *Galápagos Islands*: Baltra, April, September; Española, May; Floreana, April, May, July; Isabela, March, April, August; Pinzón, December; Santa Cruz, January–December; Santiago, July. AMNH, BMNH, CAS, IRSNB, MCZ, RSM, USNM, ZSBS.

BIOLOGY. *Foodplant*. *Maytenus octogona*. *Larva*. Head and body uniform green.

***Epidromia zetophora* Guenée.**

(Figure 118.)

Epidromia zetophora GUENÉE, 1852, in Boisduval & Guenée, Histoire Naturelle des Insectes. Lépidoptères, vol. 7, p. 326, pl. 23, fig. 5. Holotype, male: Brazil; not traced.

Variable species. Only one male of this species has been taken on the Islands. It was collected in 1932 by M. Willows, Jr. of the Templeton-Crocker Expedition.

DISTRIBUTION. Widespread neotropical species. *Galápagos Islands*: Isabela, May. CAS.

BIOLOGY. No data available.

Epidromia zephyritis Schaus.

(Figures 122 & 123.)

Epidromia zephyritis SCHAUS, 1923, *Zoologica*, vol. 5, p. 43. Holotype, female (examined): Galápagos: Indefatigable [Santa Cruz]; USNM.

Another variable species.

DISTRIBUTION. Endemic species. *Galápagos Islands*: Baltra, no month; Floreana, April, July; Isabela, January, March, July–September; Pinzón, April; San Cristóbal, April, October; Santa Cruz, January–December; Santiago, March, July. AMNH, BMNH, CAS, IRSNB, MCZ, RSM, USNM, ZSBS.BIOLOGY. Arid and coastal areas where its foodplant occurs. *Foodplant*. *Scutia pauciflora*. Larvae collected on the mangrove *Laguncularia racemosa*, at Punta Espinosa, Fernandina in September 1970, although not reared, have been referred to this species. *Larva*. Whitish with extensive gray and brown markings.

HYPENINAE

Sorygaza variata Hayes, new species.

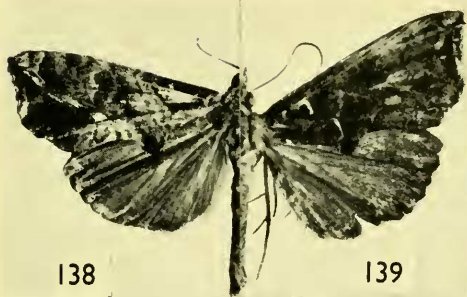
(Figures 142, 143, 164, & 165.)

DESCRIPTION. Male 10 mm. Antenna simple. Palpus prominent, clothed with buff and dark brown scales. Forewing cream, orange-brown, and darker brown. Postmedial band and antemedial band crenulate. Darker scaling of subterminal line forming crescent at apex. Prominent dark spotting forming adterminal line. Genitalia figured.

Female 9.5 mm. Broader winged but similar to male.

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FIGURE 138. *Plusiodonta clavifera* (Walker), male, Santa Cruz ($\times 2$; CAS). FIGURE 139. *P. clavifera* (Walker), female, Santa Cruz ($\times 2$). FIGURE 140. *Glympis toddi* Hayes, new species, holotype, male, Floreana ($\times 2$). FIGURE 141. *G. toddi* Hayes, new species, paratype, female, Floreana ($\times 2$). FIGURE 142. *Sorygaza variata* Hayes, new species, holotype, male, Santa Cruz ($\times 2$; CAS). FIGURE 143. *S. variata* Hayes, new species, paratype, female, Isabela ($\times 2$). FIGURE 144. *Rivula asteria* (Druce), male, Santa Cruz ($\times 2$; CAS). FIGURE 145. *Metallata absumens contiguata* Hayes, new subspecies, holotype, male, Floreana ($\times 2$). FIGURE 146. *M. absumens contiguata* Hayes, new subspecies, paratype, male ($\times 2$). FIGURE 147. *Hypena microfuliginea* Hayes, new species, holotype, male, Isabela ($\times 2$). FIGURE 148. *H. microfuliginea* Hayes, new species, paratype, female, Floreana ($\times 2$). FIGURE 149. *Peliala fuliginea* Hayes, new species, holotype, male, Pinta ($\times 2$). FIGURE 150. *P. fuliginea* Hayes, new species, paratype, female, Pinta ($\times 2$). FIGURE 151. *Hypena vetustalis* (Guenée), female, Floreana ($\times 2$). FIGURE 152. *Ophiuche lividalis* (Hübner), male, Floreana ($\times 2$; CAS). FIGURE 153. *O. minualis constans* Hayes, new subspecies, holotype, male, Santa Cruz ($\times 2$; CAS). FIGURE 154. *O. minualis constans* Hayes, new subspecies, paratype, female, Pinta ($\times 2$).



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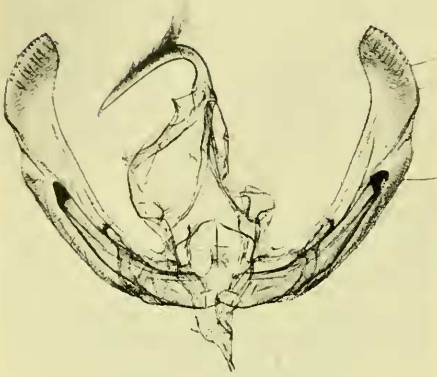
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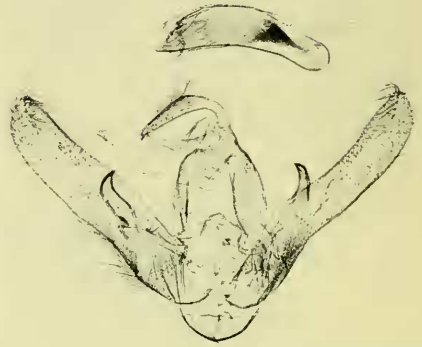
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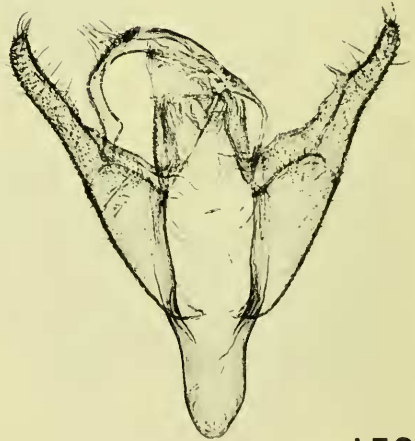
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FIGURE 155. *Magusa crema* Hayes, new species, paratype, male, genitalia. FIGURE 156. *Trachea cavagnaroi* Hayes, new species, holotype, male, genitalia (CAS). FIGURE 157. *Hypena microfuliginea* Hayes, new species, paratype, male, genitalia. FIGURE 158. *Ozarba consternans* Hayes, new species, paratype, male, genitalia (CAS).

Variable species.

Nearest species is *Sorygaza didymata* Walker. The forewing of *S. variata* has a more evenly rounded postmedial band and is a more strongly colored species. The diagnostic dorsal process of the male genitalia (see figure) also separates *S. variata*.

DISTRIBUTION. Endemic species.

HOLOTYPE. Male. Santa Cruz, Horneman Farm, 220 m., 5 April 1964, D. Q. Cavagnaro. CAS.

PARATYPES. Isabela, January, August; Santa Cruz, April, May. BMNH (7 specimens), CAS (15 specimens).

BIOLOGY. No data available.

Hypena vetustalis (Guenée).

(Figure 151.)

Bomolocha vetustalis GUENÉE, 1854, in Boisduval & Guenée, Histoire Naturelle des Insectes. Lépidoptères, vol. 8, p. 35. Holotype, female (examined): Haiti; BMNH.

Known only from female specimens. Further material may prove a species-complex is involved.

DISTRIBUTION. Widespread neotropical species. *Galápagos Islands*: Floreana, January; Isabela, August; Santa Cruz, May, June, July. AMNH, BMNH.

BIOLOGY. No data available.

Hypena microfuliginea Hayes, new species.

(Figures 147, 148, & 157.)

DESCRIPTION. Male 13.5 mm. Antenna simple. Palpus prominent, heavily scaled. Midbrown forewing with prominent orbicular spot. Postmedial fascia with two rounded extensions terminad. Hindwing drab brown.

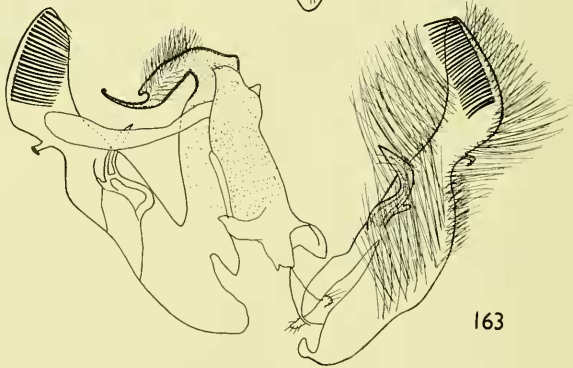
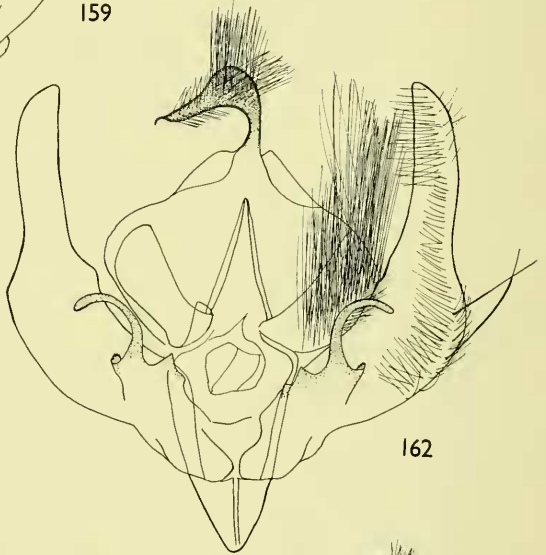
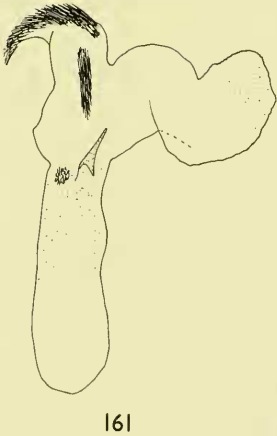
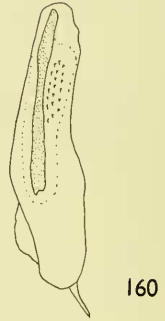
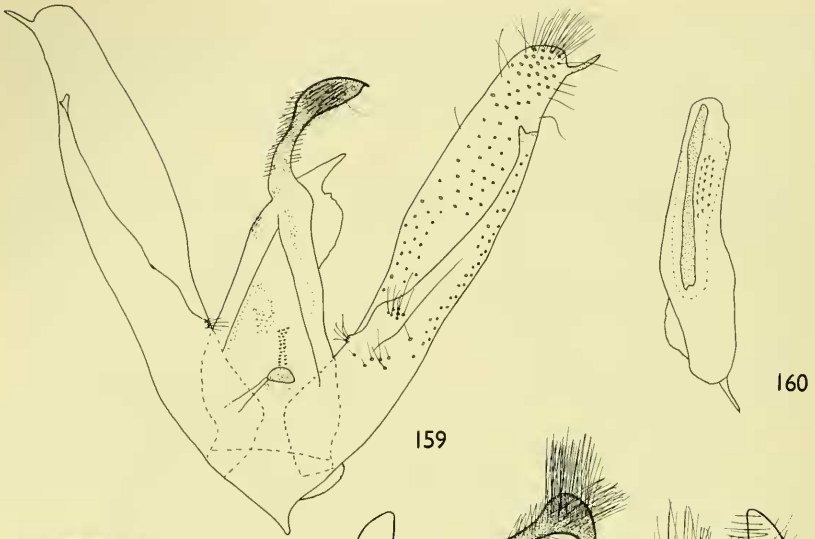
Female 14 mm. Broader winged but similar to male.

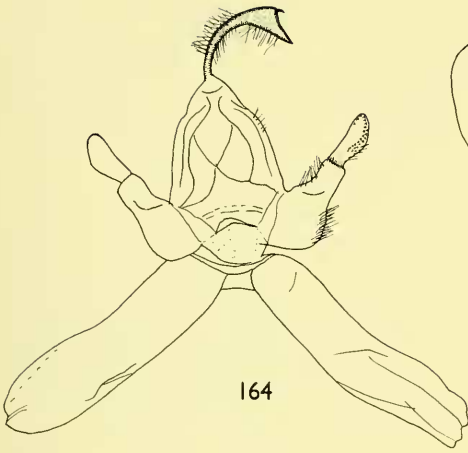
Nearest species is *Hypena vetustalis* Guenée but *H. microfuliginea* can also be confused with the larger *Peliala fuliginea*. However, *H. vetustalis* has a straight median line. Palpus structure and male genitalia also separate *H. microfuliginea* from *P. fuliginea*.

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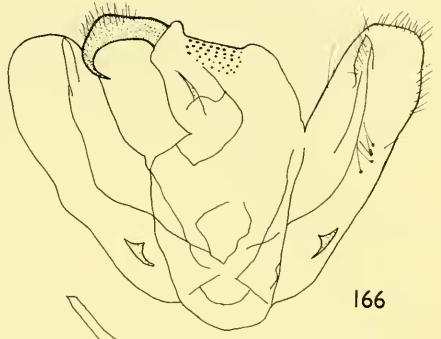
FIGURES 159 and 160. *Rivula asteria* (Druce) male genitalia (CAS). FIGURES 161 and 162. *Elaphria encantada* Hayes, new species, paratype, male, genitalia. FIGURE 163. *Psaphara interclusa* Walker, holotype, male, genitalia.

FIGURES 164 and 165. *Sorygaza variata* Hayes, new species, holotype, male, genitalia (CAS). FIGURES 166 and 167. *Peliala fuliginea* Hayes, new species, paratype, male, genitalia. FIGURES 168 and 169. *Epiplema becki* Hayes, new species, holotype, male, genitalia (CAS). FIGURE 170. *E. becki* Hayes, new species, paratype, female, genitalia.

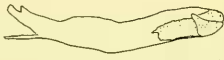




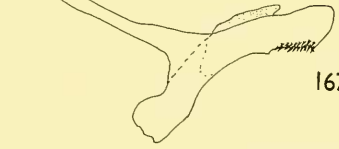
164



166



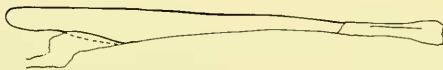
165



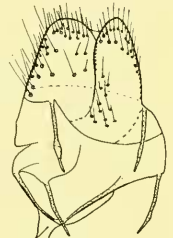
167



168



169



170



DISTRIBUTION. Endemic species.

HOLOTYPE. Male. Isabela (Albemarle) 200 ft., 7 August 1924, St. George Expedition, C. L. Collenette. BMNH.

PARATYPES. Floreana, January, April; Isabela, August; Santiago, July. BMNH (3 specimens), ZSBS (1 specimen).

BIOLOGY. No data available.

Peliala fuliginea Hayes, new species.

(Figures 149, 150, 166, & 167.)

DESCRIPTION. Male 16 mm. Antenna simple. Palpus prominent, thinly scaled. Tornus of forewing less strongly angulate, rounded. Postmedial fascia with two rounded extensions terminad. Dark brown coloration throughout with prominent orbicular spot. Hindwing midbrown. Genitalia figured.

Female 15 mm. Broader winged but similar to male. Somewhat variable in maculation.

Peliala fuliginea has rounded extensions on the postmedial fascia of the forewing which separates it from *Hypena vetustalis*. Palpus structure and genitalia also separate *P. fuliginea* from *H. microfuliginea*.

DISTRIBUTION. Endemic species.

HOLOTYPE. Male. Pinta, 630 m., November 1970, R. Perry & Tj. de Vries. BMNH.

PARATYPES. Floreana, January; Isabela, April, August, September; James, July; Pinta, October, November; Santa Cruz, February–August, December. AMNH (49 specimens), BMNH (28 specimens), CAS (73 specimens), ZSBS (4 specimens).

BIOLOGY. No data available.

Ophiuche lividalis (Hübner).

(Figure 152.)

Pyralis lividalis HÜBNER, 1790, Beiträge zur Geschichte der Schmetterlinge, vol. 2, no. 4, pp. 86–87, pl. (4) 1, fig. E. Holotype: Italy, Florence; not traced.

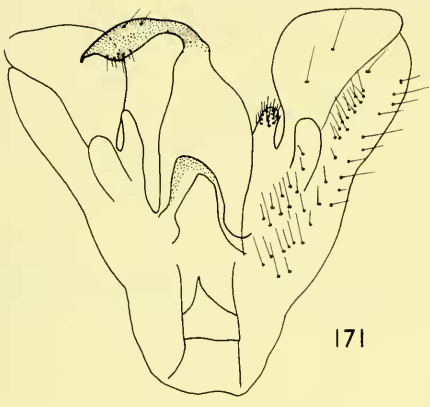
Based on a specimen in the CAS and a worn example in the ZSBS.

DISTRIBUTION. Almost cosmopolitan. *Galápagos Islands*: Floreana, April. CAS, ZSBS.

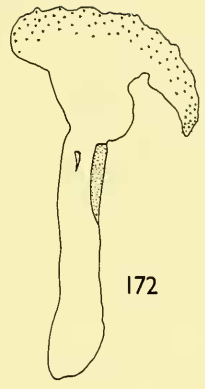
BIOLOGY. No data available.

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FIGURES 171 and 172. *Utetheisa perryi* Hayes, new species, paratype, male, genitalia.
 FIGURES 173 and 174. *Agrotis consternans* Hayes, new species, holotype, male, genitalia.
 FIGURES 175 and 176. *Utetheisa devriesi* Hayes, new species, paratype, male, genitalia.



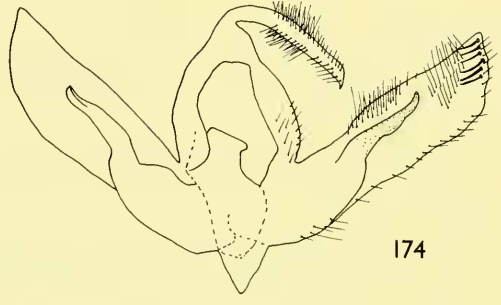
171



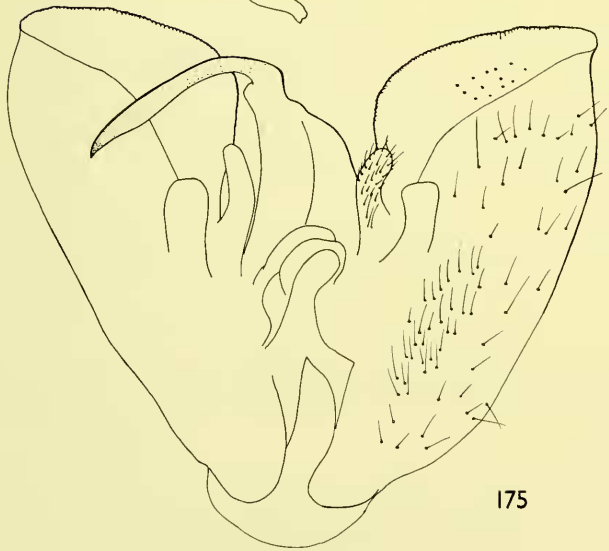
172



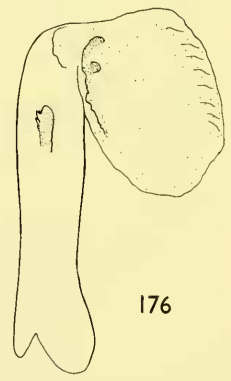
173



174



175



176

Ophiuche minualis constans Hayes, new subspecies.

(Figures 153 & 154.)

The median line on the forewing of Galápagos specimens is always straighter than that of mainland specimens.

DISTRIBUTION. Endemic subspecies of the neotropical species.

HOLOTYPE. Male. 8 mm. Santa Cruz, Horneman Farm, 220 m., 5 March 1964, D. Q. Cavagnaro. CAS.

PARATYPES. Floreana, January, April; Isabela, September; Pinta, October, November; Santa Cruz, February–June, October. AMNH (6 specimens), BMNH (49 specimens), CAS (32 specimens), MCZ (1 specimen), MRAC (1 specimen), ZSBS (1 specimen).

BIOLOGY. No data available.

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